

EPA Identification Number	NPDES Permit Number	Facility Name
WAD06711639	WA0040347	Schnitzer Steel of Tacoma

APPLICATION FORM 2F - ATTACHMENTS

Stormwater Discharges Associated with Industrial Activity

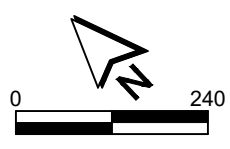
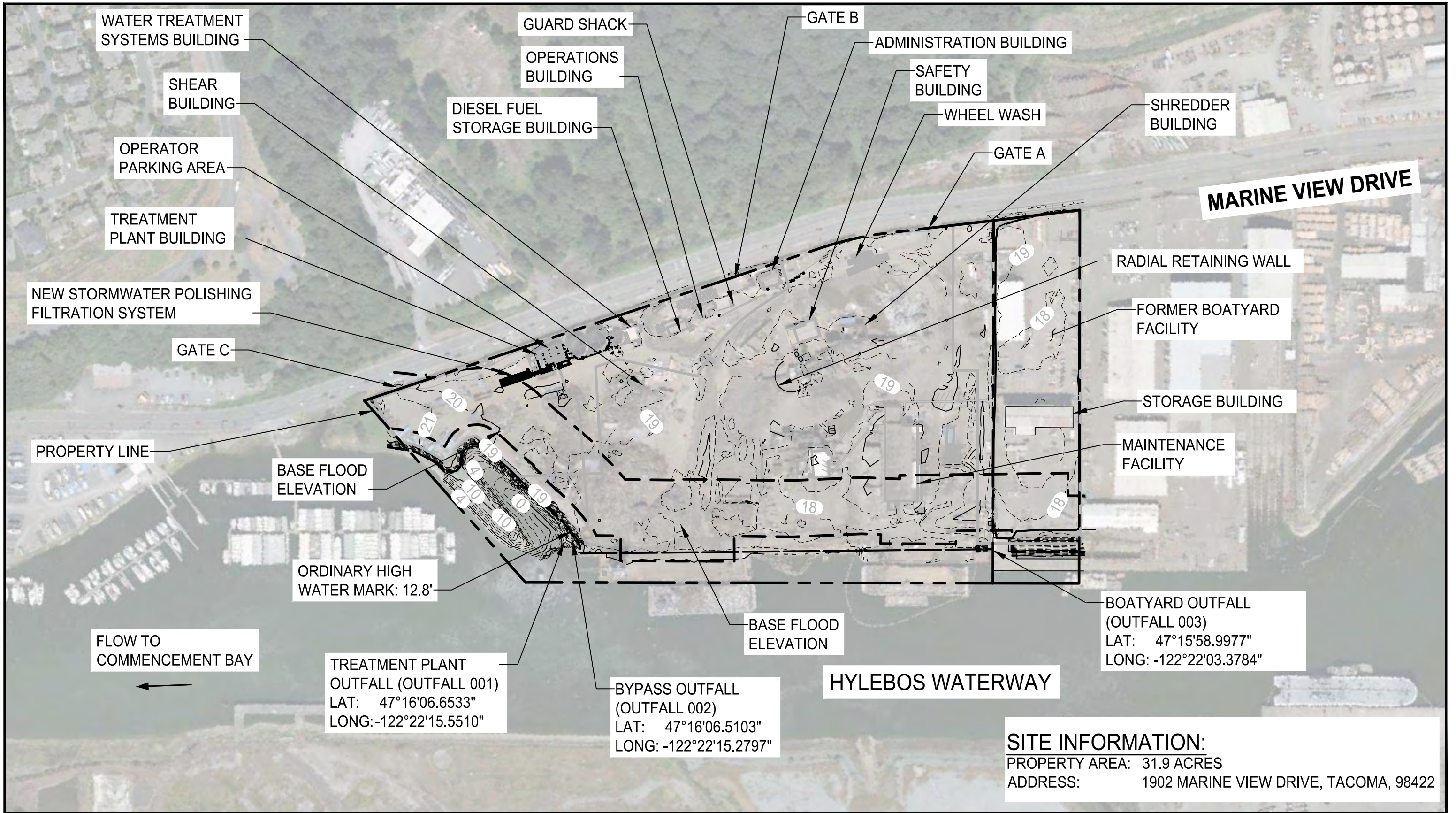
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Topographic Map

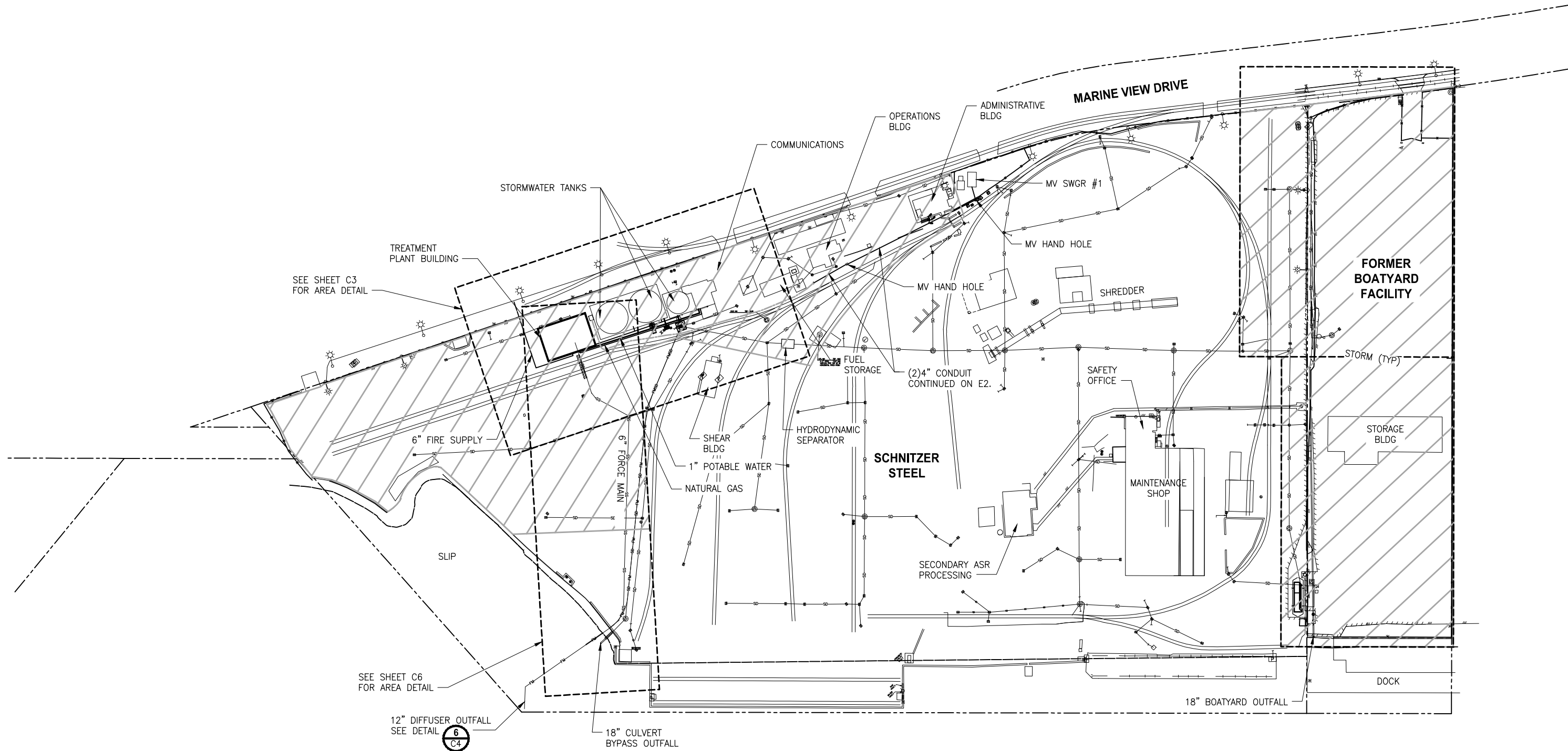




Appendix A.2

Overall Site Plan

DATE: Jun 20, 2012 - 4:32pm
PLOTTED BY: csmulder
LAYOUT: C2
IMAGES: XREFS: XBR3312004-TB | XBR3312002P02T04BA-SV | XBR3312002-BA | BTH-PE-WA | XBR3312002-DE



GENERAL NOTES:

1. DRAWING IS BASED ON PRELIMINARY SURVEY DATA AND PREVIOUS DESIGN DRAWINGS. DRAWINGS SHOULD BE USED FOR PLANNING PURPOSES ONLY UNTIL FACILITY SURVEY IS COMPLETE.

**OVERALL SITE PLAN
PLAN**

SCALE IN FEET

0 80 160



REVISIONS	DATE	BY	DESIGNED
			B. HARDY
			DRAWN
			S. RASMUSSEN
			CHECKED
			APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY	
FILE NAME	BR3312002 C-02
JOB No.	275-3312-004
DATE	JUNE 2012

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PROJECT NAME	SCHNITZER STEEL STORMWATER IMPROVEMENTS
TACOMA, WASHINGTON	

OVERALL SITE PLAN

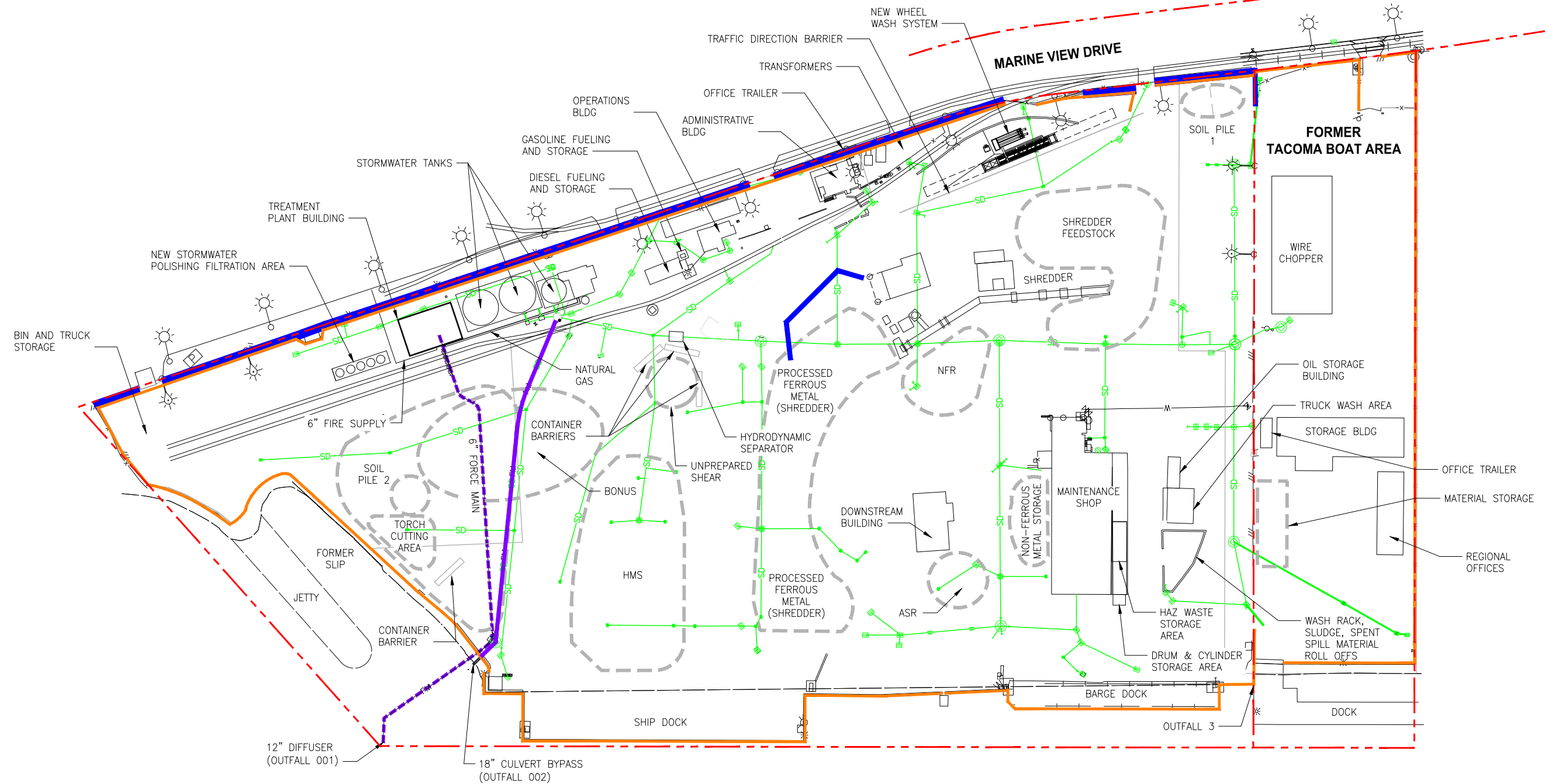
DRAWING NO. 3 OF 65
C2

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Appendix B

Site Plan





Parametrix

DATE: May 4, 2020 FILE: PS3312006-F2_C3D2018 FOR 2020 SD

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- RAILROAD
- FENCE

- STORM DRAIN LINE
- EFFLUENT DISCHARGE LINE
- BYPASS DISCHARGE LINE

- ◆ STORM SEWER CATCH BASIN
- ⊙ STORM SEWER MANHOLE
- STORM WATER CONTROL CURBING

- PERIMETER WALL
- ⊙ OVERHEAD LIGHT



**SITE PLAN
SCHNITZER STEEL IND.
Tacoma, WA**

Appendix C

Stormwater Pollution Prevention Plan (SWPPP)



Stormwater Pollution Prevention Plan

Prepared for
General Metals of Tacoma

September 2022

Prepared by
Parametrix

Stormwater Pollution Prevention Plan

Prepared for

General Metals of Tacoma

d.b.a. Schnitzer Steel Industries
1902 Marine View Drive
Tacoma, WA 98422

Prepared by

Parametrix

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Bremerton, WA 98337
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CITATION

Parametrix. 2022. Stormwater Pollution Prevention Plan. Prepared by Parametrix, Bremerton, Washington. September 2022

Distribution List

1. The following regulatory agencies will receive copies of this plan (via SAW):

Industrial Unit Permit Coordinator
Department of Ecology
Southwest Region Office
P.O. Box 47775
Olympia, WA 98504-7775

2. The following General Metals of Tacoma (GMT) personnel will receive copies of the plan:

- Corey Bailey – Senior Environmental Manager
- Rich Lentes – Safety Engineer
- Ernest Everett – Terminal Operations Manager
- Lawrence Warnock – Night Shift Supervisor
- Kyle Keehnel – Downstream Manager
- Carlos Torres – Shredder Manager
- Dan Prophater – Regional General Manager

The modification and distribution of this document is the responsibility of the Regional Environmental Manager.

MANAGEMENT CERTIFICATION

I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the systems, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

General Metals of Tacoma

Signature: _____

Name: _____

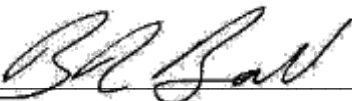
Title: _____ Date: _____

ENGINEER CERTIFICATION

The technical material and data contained in this Stormwater Pollution Prevention Plan were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.



9/8/2022



Brandon Ball, P.E.

Schnitzer will periodically review the SWPPP and document reviews and revisions in the table below.

[illegible]

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 - E-6 BMPs for Storage or Transfer (Outside) of Solid Raw Materials, Byproducts, or Finishes Products
 - E-7 BMPs for Washing and Steam Cleaning Vehicles/Equipment/Building Structures
- F Training Record
- G Sampling SOP

KEY TERMS

µg/L	microgram/Liter
ASR	All Shredder Residue
ASTs	aboveground storage tank
BeP	bis (2-Ethyhexyl)phthalate
C	Celsius
COD	Chemical Oxygen Demand
DMR	Discharge Monitoring Report
Ecology	Washington State Department of Ecology
GMT	General Metals of Tacoma
gpm	gallons per minute
mg/L	milligram/Liter
MSDS	material safety data sheets
NFR	non-ferrous raw
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PAH	polycyclic aromatic hydrocarbon
PCBs	polychlorinated biphenyls
pg/L	picograms per liter
PLC	programmable logic controller
SAP	Scrap Acceptance Policy
SOP	Standard Operating Procedure
SPCC	Spill Prevention Containment and Control
sq. ft.	square foot
SWMM	Stormwater Management Manual for Western Washington
SWPPP	Stormwater Pollution Prevention Plan
SWPPT	stormwater pollution prevention team
TSS	total suspended solids
WET	Whole Effluent Toxicity

1. INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) for the General Metals of Tacoma (GMT) recycling facility located at 1902 Marine View Drive in Tacoma, Washington (Figure 1) has been developed consistent with the facility's National Pollutant Discharge Elimination System (NPDES) Water Discharge Permit No. WA0040347 issued on July 26, 2019, by the Washington State Department of Ecology (Ecology). A copy of the Permit, reflecting all referenced revisions, is included in Appendix A. Other references used to assist with development of this SWPPP include:

- Ecology's *Guidance Manual for Preparing/Updating a Stormwater Pollution Prevention Plan for Industrial Facilities*, dated April 2004 (Ecology 2004).
- *Stormwater Management Manual for Western Washington* (Ecology 2012, SWMM).
- *Environmental Plan* (General Metals of Tacoma, d.b.a., Schnitzer Steel of Tacoma, December 2013).
- *Spill Prevention, Control and Countermeasures (SPCC) Plan* (General Metals of Tacoma, d.b.a., Schnitzer Steel of Tacoma, March 2021)
- *Operation and Maintenance Manual Stormwater Treatment Facility* (Parametrix, 2012 – Reissued 2022).
- *A Guide for Implementing the Industrial Stormwater General NPDES Permit Requirements* (Ecology Pub. No. 94-146, January 2006).

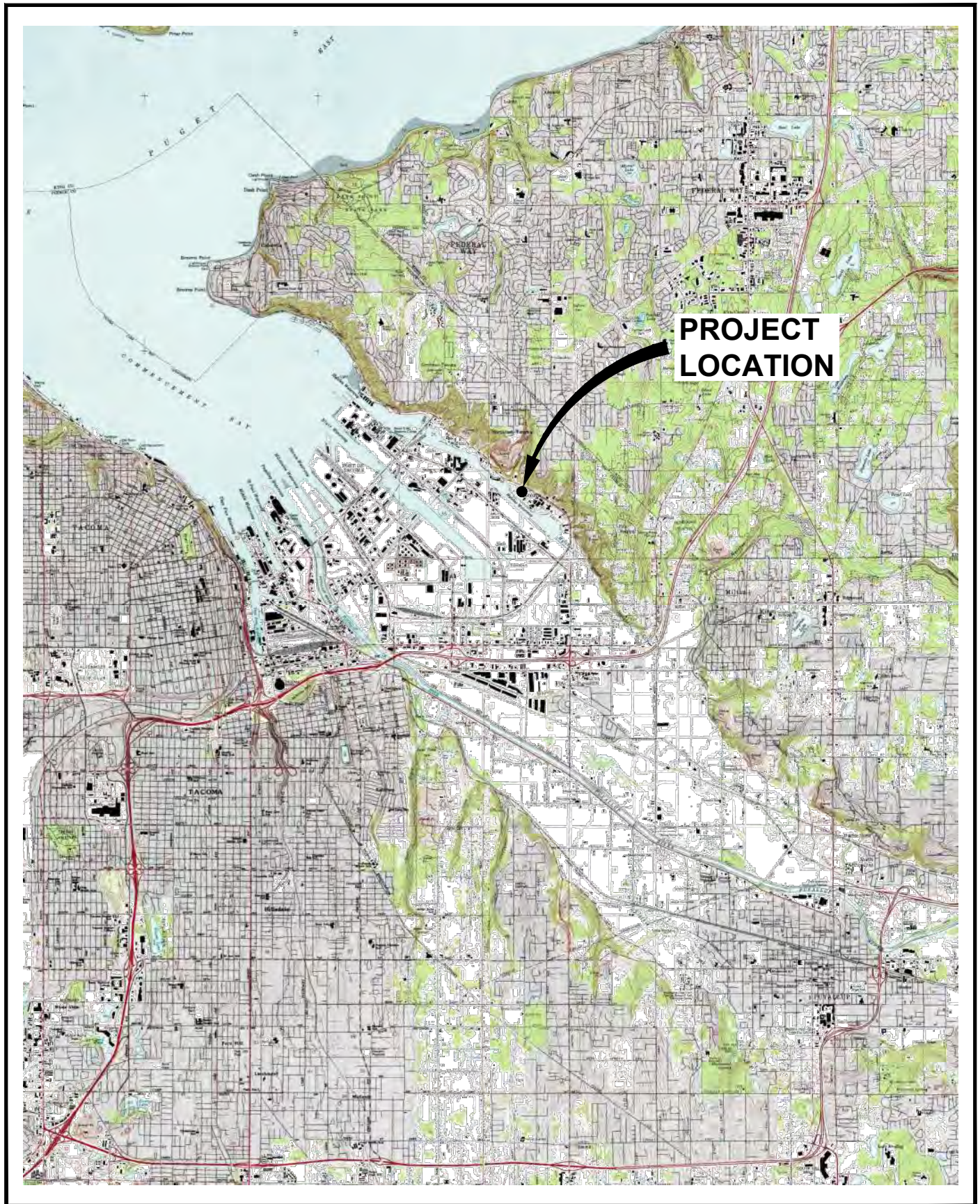
1.1 PURPOSE

The purposes of this SWPPP are to:

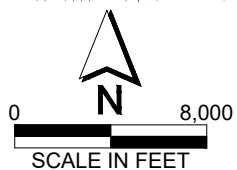
1. Document site conditions affecting stormwater runoff at the GMT facility;
2. Present GMT's stormwater pollution prevention best management practices (BMPs) for the facility;
3. Fulfill the SWPPP requirements of the facility's NPDES permit; and
4. Protect water quality of stormwater runoff and minimize potential impacts on receiving waters.

1.2 DOCUMENT FORMAT

The format for this document follows the Industrial Stormwater SWPPP Template produced by Ecology for the Industrial Stormwater General Permit. This document also addresses SWPPP requirements in the NPDES Permit No. WA0040347, Section S10 (Appendix A).



Parametrix DATE: Jul 26, 2010 FILE: BR3312002-F04



SOURCE: USGS QUADRANGLE MAPS: TACOMA NORTH,
POVERTY BAY, TACOMA SOUTH AND PUYALLUP

Figure 1
Site Location Map
Schnitzer Steel Industries, Inc.
Tacoma, WA

2. FACILITY ASSESSMENT

Parametrix personnel conducted a site reconnaissance at the GMT facility in September 2019, to observe and document site conditions with respect to stormwater management and pollution prevention. Parametrix also provided design and permitting services for the stormwater system described in this document. Parametrix' findings were used to prepare this SWPPP.

2.1 FACILITY DESCRIPTION

General Metals of Tacoma (d.b.a Schnitzer Steel Industries of Tacoma) currently operates a metal recycling facility on two properties consisting of a total of approximately 28 acres on Marine View Drive in Tacoma, Washington. The site is located in an industrial corridor along the north side of the Hylebos Waterway (Figure 1). The property has been used as a ferrous scrap metal recycling facility since 1965. Schnitzer has owned the property since approximately 1996. The site is bordered on three sides by steel security fencing. All gates are locked when the facility is closed to the public. A security service monitors the site during nighttime and early morning hours.

The entire facility is paved with either concrete or asphalt and approximately 23.2 acres are used for scrap metal recycling activities. Operations primarily involve the purchase, preparation, processing, storage, and shipment of scrap metal. The facility currently processes and recycles in excess of 300,000 tons of metal annually. Recycled goods are sent to steel mills in the United States and are also exported. Individual facilities at the site include an approximately 20,000 square-foot (sq. ft.) maintenance building, a truck/equipment wash pad, an oil storage building, a metal shredder, fuel storage building, operations building, truck scales, transformers, office building (approximately 2,400 sq. ft. footprint), a stormwater treatment system building, stormwater filtration media vessels, and water storage tanks (Figure 2). The remaining portions of the site are used as stockpile, staging, and loading/unloading areas or access roads. The facility has a dock area with cranes for loading and unloading barges and ships.

The site topography is generally flat, and the entire site is capped with impervious material (asphalt/concrete paving or buildings). The site is graded and curbed to direct site stormwater runoff towards the extensive stormwater collection system including approximately 100 catch basins (Figure 2). The stormwater collection system routes all site stormwater to the stormwater treatment system located in the northwestern section of the site.

A secondary portion of the facility consists of an adjacent 4.5-acre parcel that was formally used for ship building operations (former Tacoma Boat area). The area is mostly open and paved. GMT made improvements to the site by adding catch basins and stormwater control curbing to contain and route stormwater to the stormwater treatment facility (Figure 2). A 12,000-square-foot Wire Chopper for processing and recycling wire was completed in November 2019. This is a self-contained operation and does not adversely impact the stormwater quality.

The Peddler/Retail Operations or PRO was completed in April 2022, and currently operates on a portion of the former Tacoma Boat property and in the former Tacoma Boat building. All non-ferrous customers and peddlers are directed to the Peddler Retail Operations.

Additional activities in the former Tacoma Boat area include employee parking, administrative/regional offices, parts storage for the adjacent GMT scrap metal recycling facility, equipment storage, storage/staging area for empty metal bins of various sizes and staging of non-ferrous or ferrous material prior to off-site shipment. The regular business hours are typically between 4:00 AM and 11:30 PM Monday through Friday. Access to the former Tacoma Boat area is via a secure gate on Marine View Drive and from GMT's main yard.

The stormwater treatment system was completed in 2012. The stormwater treatment system can treat the stormwater from the main yard and the additional stormwater from the former Tacoma Boat area, providing capacity to treat up to a 10-year, 24-hour storm event, and continue to meet the NPDES permit discharge limitations. A new polishing and filtration and adsorption system to remove polychlorinated biphenyls (PCBs) and other pollutants from the treated stormwater was completed in July 2022. This system is located directly adjacent to the stormwater treatment building (Figure 2). This new polishing system was installed to meet limits in the renewed NPDES discharge permit.

A wheel wash was installed in 2018 as a BMP to reduce trackout from the facility. Traffic patterns in the facility are such that all vehicles entering the industrial area exit through the wheel wash prior to leaving the site (Figure 3). The system is self-contained and does not discharge. Accumulated sediment is collected in 1-yard bins at the end of a conveyor, transferred to a 10-yard bin, and hauled off-site as non-hazardous soil.

2.2 SITE MAP

A map of the GMT site showing the features pertinent to stormwater management at the facility is presented in Figure 2. As shown on the map, the entire facility can be treated as one stormwater basin for the purposes of the SWPPP, because all site stormwater is collected and routed to one location for treatment prior to discharge. No other significant runoff is generated at the site. The site map shows locations for stormwater collection, conveyance, treatment, and discharge. The treatment system is described in Section 4.4 of this SWPPP. The site map also includes the main facilities and materials storage locations at the site.

2.3 INDUSTRIAL ACTIVITIES

Metal scrap consisting of a wide variety of recycled items including metal parts, automobiles, appliances, and steel fabrication remnants is delivered to the facility from private and commercial parties by truck, rail, or barge. The facility has a Scrap Acceptance Policy (SAP) that is provided to all facility suppliers, and only material meeting the criteria specified in the SAP is accepted at the facility. Accepted scrap is weighed, graded, and assigned to one of three basic feedstock staging areas according to type, size, and thickness. The three basic scrap processing areas are the torch-cut, shear, and shredder areas.

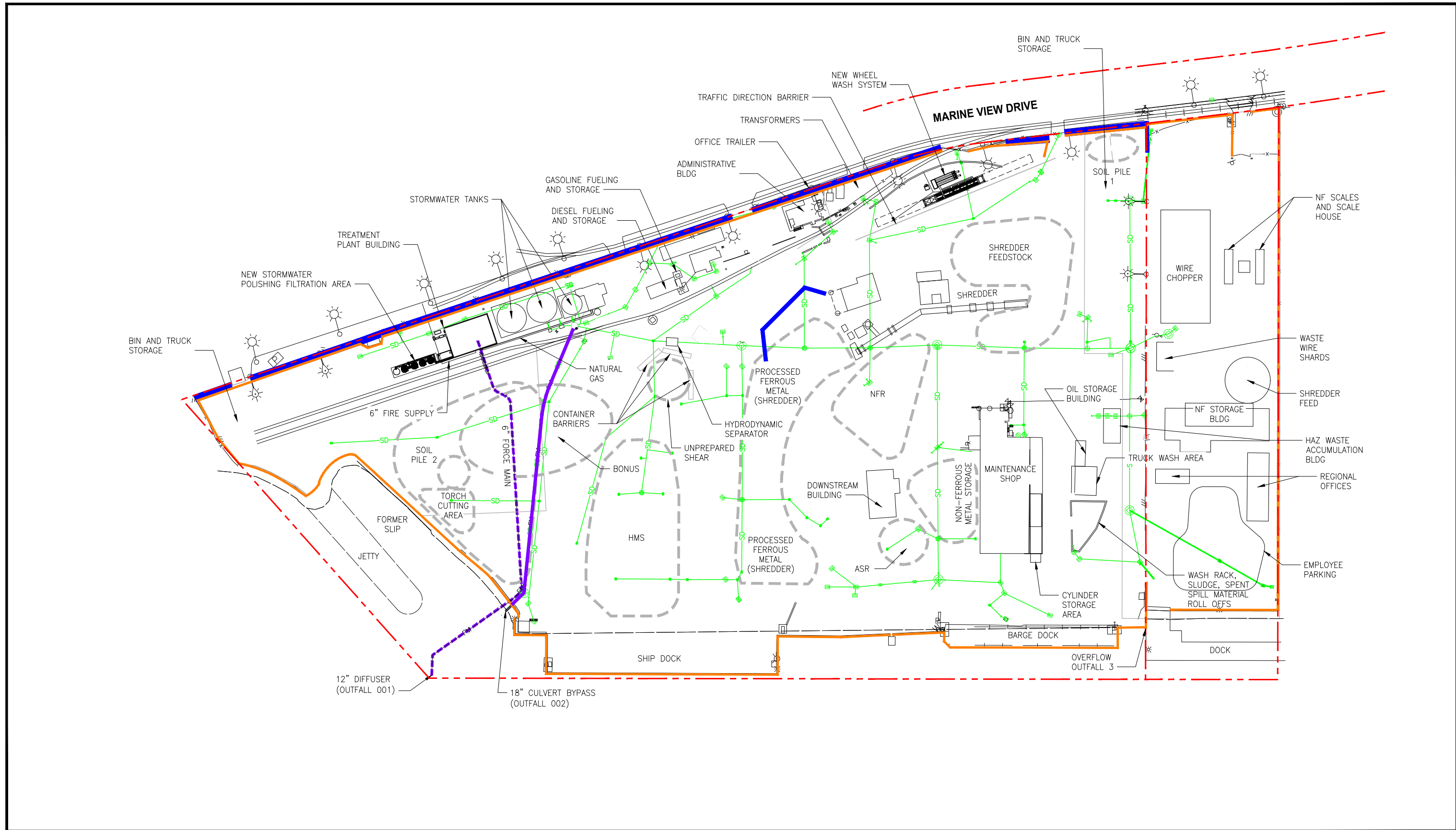
Once received, the scrap material is either processed immediately (e.g., in the shredder, or shear or torch cut, depending on the grade of the material), or is staged for future processing or off-site transfer. Materials processed in the shredder include automobiles, appliances, baled and loose sheet metal, and other relatively thin metals. The shredder reduces the size of the scrap and separates the ferrous metals from non-ferrous metals. Non-ferrous raw (NFR) is further processed using a variety of means, including magnetic and gravity separators to recover non-ferrous metals. Items not amenable to processing in either the shredder or the shear may be cut by portable shears or by torch, or transferred off-site as-is.

Processed and unprocessed scrap, and processing residues (e.g., all shredder residue, ASR) are temporarily staged at the facility in outdoor piles until off-site shipment is arranged. The processed and sorted scrap is then loaded into trucks, rail cars, cargo containers, barges, or ships for shipment off-site to domestic and foreign steel mills, where the material is melted and formed into new steel for manufacturing of new products. The Automobile Shredder Residue (ASR) is loaded on trucks for shipment off-site for use as an approved alternate daily cover material at appropriate Subtitle D landfills.

In addition to these primary facility operations, several support operations and areas are present on-site. These include a water treatment plant for treating stormwater, weigh-scales, a fueling area, vehicle and equipment maintenance, docks (with cranes), and truck washing. Materials related to these support operations that have the potential to impact stormwater include petroleum

products (fuels, lubricants, greases, motor oils, hydraulic oils), coolants (glycol), small quantities of paints, and waste fluids (oils and coolant). In general, these materials are stored either indoors or under covered awnings or open-sided buildings with secondary containment.

One fixed fueling area is present on-site, including both diesel fuel and gasoline. The fueling area is shown on Figure 2. In addition, mobile fueling of equipment (and minor maintenance) is also conducted on-site.



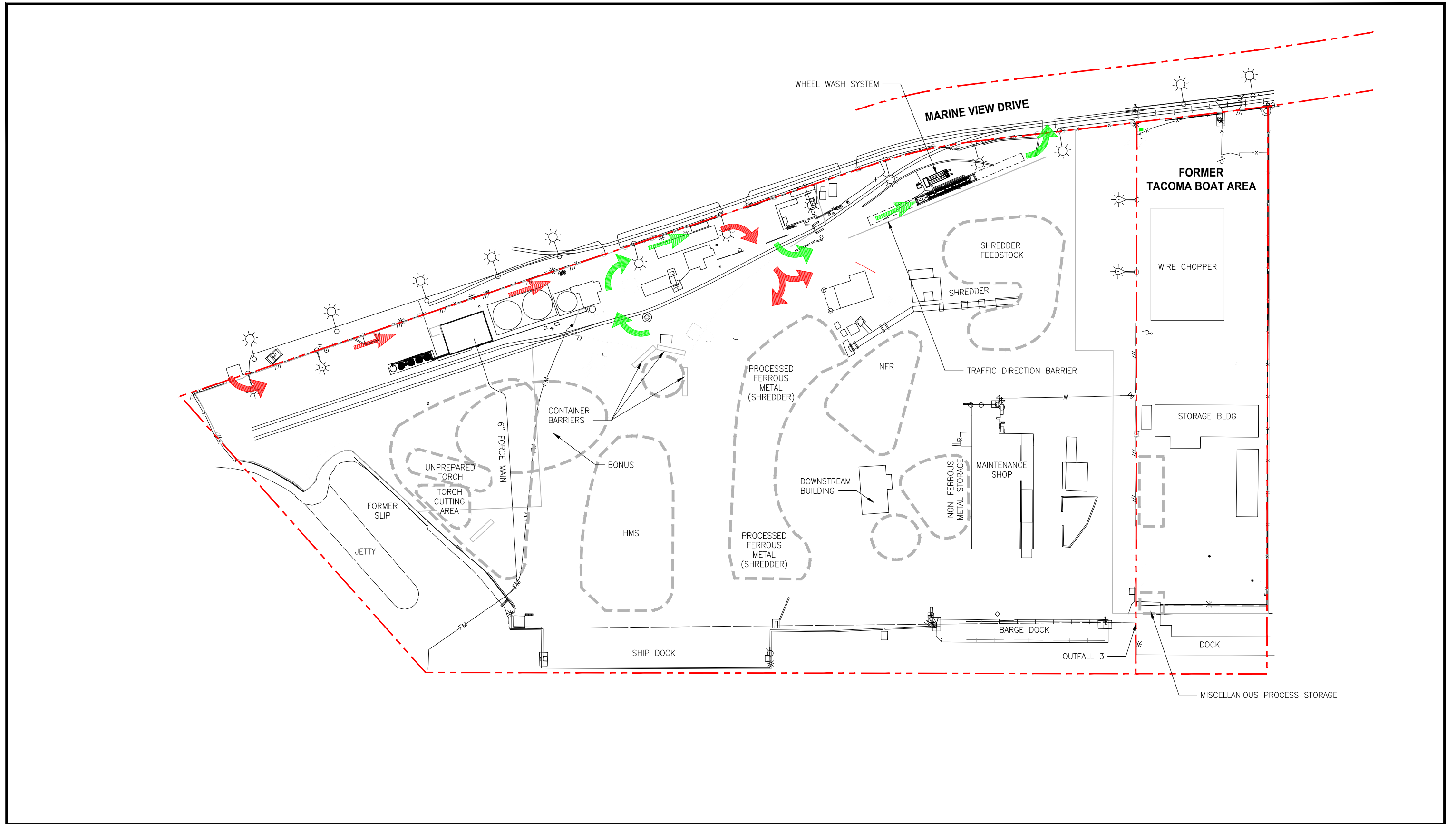
Parametrix DATE: July 29, 2022 FILE: PS3312006-F2_SWPPP2022-20220121.mxd

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SCALE IN FEET

LEGEND

<p>--- APPROXIMATE PROPERTY BOUNDARY</p> <p>== RAILROAD</p> <p>-x-x- FENCE</p>	<p>--- STORM DRAIN LINE</p> <p>--- EFFLUENT DISCHARGE LINE</p> <p>--- BYPASS DISCHARGE LINE</p>	<p>◆ STORM SEWER CATCH BASIN</p> <p>⊙ STORM SEWER MANHOLE</p> <p>— STORM WATER CONTROL CURBING</p>
		<p>— PERIMETER WALL</p> <p>⊙ OVERHEAD LIGHT</p>

Figure 2
SITE PLAN
SCHNITZER STEEL IND.
Tacoma, WA



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- ➔ INBOUND TRAFFIC FLOW
- ➔ OUTBOUND TRAFFIC FLOW

Figure 3
GMT Traffic Flow Plan
General Metals of Tacoma
Tacoma, WA

2.4 INVENTORY OF MATERIALS

This section describes “significant materials” at the site which may be exposed to stormwater. For the purposes of the permit, “significant materials” are defined as including, but not limited to:

...raw materials; fuels; materials such as solvents, detergents and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical that a facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ash, slag and sludge that have the potential to be released with storm water discharges.

Significant materials that might be expected at the GMT facility are identified in the *Environmental Plan* (GMT 2013) and include:

Fuel Pod (located west of main scale):

- Diesel (fixed storage), 12,000-gallon.
- Diesel (mobile), 1,000-gallon.
- Gasoline (fixed storage), 500-gallon.

Maintenance Building:

- Used Oil, 1,082-gallon.
- Used Oil, 1,450-gallon.
- Used Diesel, 350-gallon.
- Used Antifreeze, 350-gallon.
- Motor Oil, 55-gallon drums (ten or more).

Waste Storage Area

- Storage area for all hazardous and universal wastes..

Stormwater Treatment Plant:

- Dilute Sodium Hydroxide, 2,500-gallon.
- Aluminum Chlorohydrate, 3,150-gallon.
- Polymer, 1,000-gallon.
- Lime, 50-gallon bags.
- Defoamer, 55-gallon drum.

Shredder:

- Hydraulic Oil, 90-gallon (in-feed conveyor).
- Hydraulic Oil, 90-gallon (double feed roller).
- Hydraulic Oil, 110-gallon (mill hydraulics).
- Mineral Oil, 2,270-gallon (transformer vessels).

Oil Storage Shed:

- Motor Oil, 500-gallon (15/40 wt).
- Motor Oil, 500-gallon (40 wt).
- Hydraulic Oil, 500-gallon (46 wt).
- Gear Oil, 500-gallon (80/90 wt).
- Various Oils, 55-gallon drums (10 or more).
- Antifreeze, 55-gallon drums (10 or more).
- Various Oil, 55-gallon drums (various).

Mobile Maintenance Truck:

- Hydraulic Oil, 40-gallon.
- Motor Oil, 40-gallon (30 wt).
- Motor Oil, 40-gallon (15-40 wt).
- Diesel, 600-gallon.
- Used Oil, 35-gallon.
- Antifreeze, 40-gallon.
- Grease, 55-gallon.
- Motor Oil, 55-gallon (90 wt).

Electrical Substation:

- Mineral Oil, 3,161-gallon (transformer vessels).

With the exception of the mobile service truck, the transformers, the hydraulic reservoirs of some of the fixed equipment, and the fuel, motor oil, transmissions, and coolant tanks of the rolling stock, the petroleum products listed above are stored under cover and within secondary containment. The remaining materials are all stored under cover and are not expected to be in contact with stormwater. Additional information regarding the materials listed above and protective measures is included in the facility's *SPCC Plan*.

Potential contact of these materials with stormwater would be limited to leaks from vehicles or equipment, or potential spills during significant material transfer operations.

As a result of the presence of these significant materials, the following potential stormwater pollutants have been identified:

- Petroleum hydrocarbons:
 - Oil and grease.
 - Hydraulic fluid.
 - Fuels (diesel, gasoline, etc.).
- Antifreeze (glycol).
- Heavy metals.
- Dust/soils.

2.5 PAST SPILLS AND LEAKS

There have been no significant spills at the facility during the past five years. Any significant spills will be logged and managed in accordance with the *SPCC Plan (2021)*.

3. STORMWATER POLLUTION PREVENTION TEAM

The designated GMT stormwater pollution prevention team (SWPPT) is responsible for the implementation of this SWPPP at the GMT facility. The SWPPT is shown in Table 3-1.

Table 3-1. GMT Stormwater Pollution Prevention Team

Company	Name/Title	Responsibility	Address	Phone/Email
GMT	Corey Bailey NW Region Environmental Manager	SWPPT Leader. Management of all environmental permits, treatment plant, and treatment plant personnel. All emergencies should be reported to Corey Bailey immediately.	1902 Marine View Drive Tacoma, WA 98422	(253) 404-6686 (253) 337-3111
GMT	Dan Prophater General Manager	Management of GMT	1902 Marine View Drive Tacoma, WA 98422	(253) 404-6690 (253) 341-7090
GMT	John Franklin Lead Treatment Plant Operator	General operation of treatment facility	1902 Marine View Drive Tacoma, WA 98422	(253) 300-8804 (253) 677-3190
GMT	Verl Engel Treatment Plant Operator	General operation of treatment facility and wheel wash	1902 Marine View Drive Tacoma, WA 98422	(253) 244-0382
GMT	Ernest Everett Terminal Operations Manager	Terminal operations	1902 Marine View Drive Tacoma, WA 98422	(253) 404-6678

The team leader will assign facility personnel as team members to maintain a complete team roster. The leader schedules, attends, and chairs all team meetings and is responsible for ensuring that the team holds regular meetings to review the overall adequacy of the SWPPP. Meetings are to be held on a quarterly basis at a minimum, and meeting minutes will be recorded. The team leader is responsible for assigning specific oversight areas to individual team members. The team leader is also the primary designated 24-hour emergency contact for spills, unless the team leader designates this responsibility to another team member.

Responsibilities to be designated between the team members include:

- Permit-required stormwater sampling and discharge observations;
- Stormwater infrastructure inspections;
- SWPPP-required reporting and documentation;
- Agency submittals;
- Execution of employee training requirements specified in the SWPPP; and
- Evaluation of the adequacy of employee training.

4. BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) that prevent releases of materials at a facility by implementing preventative management practices and activities are referred to as *operational source control* BMPs. Physical, structural, or mechanical devices that physically prevent materials from contacting stormwater or entering the stormwater system are identified as *structural source control* BMPs. Mechanisms, facilities, or processes that treat stormwater impacted with stormwater contaminants are called *treatment* BMPs.

The primary stormwater BMP at the GMT facility is the stormwater treatment system (described in Section 4.4). In addition, the entire facility is paved, and all stormwater generated at the facility is collected and routed through the stormwater treatment system prior to discharge to the Hylebos Waterway (Figure 2). In addition to this primary treatment BMP, GMT has implemented operational and structural source control BMPs to minimize contaminant loads to the treatment system and for internal stormwater management and housekeeping. GMT also installed a wheel wash system to reduce trackout from the facility. The BMPs are described in the following sections.

4.1 GENERAL PERMIT BMPS

The BMPs specified for implementation at the GMT facility are considered to be consistent with BMPs suggested in the *Guidance Manual for Preparing/Updating a Stormwater Pollution Prevention Plan for Industrial Facilities* (Ecology 2004) and the *Stormwater Management Manual for Western Washington* (Ecology 2012a, 2012b, 2012c).

The use of BMPs from these documents meets the Ecology requirements for the presumptive approach to BMP selection; therefore, no supporting documentation regarding the technical effectiveness of the SWPPP BMPs is required.

4.2 OPERATIONAL BMPS

4.2.1 Stormwater Pollution Prevention Team

The SWPPT is responsible for the implementation of all stormwater pollution prevention measures specified in this SWPPP. The pollution prevention team is identified in Section 3. In addition to the team, Section 4.2 also specifies operation source control stormwater BMPs for the facility.

4.2.2 Good Housekeeping

Maintaining a clean and orderly job site is instrumental for controlling potential stormwater pollutants, as well as for ensuring a safe working environment. The following management practices related to good housekeeping are followed at the facility:

- Accessible areas are swept using a vacuum or broom sweeper on an average of once per week and are swept using a magnetic collector on an average of once per month.
Water is used in the paved areas for dust control during dry periods. Sweeping is to be conducted in a manner which directs material away from storm drains. Drains should not be swept over as this can cause blockage.
- Catch basin grates and baskets are inspected by designated departmental personnel at least once per week (if/when they are accessible) to ensure that they remain clear of foreign material/debris and do not become blocked. During dry periods accumulated debris can be removed by pulling the grate and basket, dislodging debris, and then

disposing of the debris in designated areas. This same procedure may be utilized during precipitation events, **if and only if**, the drain **has not** become blocked **and** there is no risk of foreign material entering the drainage system during grate and basket cleaning. If a catch basin is observed to be blocked (evidenced by ponding) at any time, the blocked catch basin can only be cleared using a vacuum truck under the direct supervision of a SWPPT member. **Blocked drains should be reported to a SWPPT member as soon as they are observed.**

- Trash dumpsters are placed strategically around the site to promote proper disposal of paper, wood, and other items that may be discarded during truck loading and offloading.
- Containers of chemicals and wastes are properly labeled, are kept closed, under cover, in secondary containment and are maintained in appropriate storage areas. Any containers damaged in shipment or storage are promptly over-packed, or the contents are transferred to a sound container.
- Company trucks are serviced regularly in the maintenance building to minimize the potential for fluid releases (drips and leaks). It is the policy of GMT to promptly repair leaks and to promptly contain, recover, and clean spills.
- Facility-wide inspections are conducted at least once per month to identify areas needing cleanup and general policing.
- Spills kits are located throughout the facility. The spill kit locations are shown in the Site Map contained in the SPCC Plan.

Company personnel are trained to respond promptly to contain and clean up spills using sorbent materials. In addition, it is GMT policy to promptly repair all leaking connections, hoses, and equipment used for chemical transfer or handling and to inspect, repair, or replace as needed any damaged curbs, berms, primary chemical storage containers (drums, ASTs, totes, etc.), and secondary containment structures.

4.2.3 Preventive Maintenance

Preventive maintenance involves the regular inspection, cleaning, and mechanical maintenance of vehicles, equipment, and stormwater management structures, as well as other activities designed to reduce the likelihood of spills and leaks. The following preventive maintenance provisions have been implemented at the GMT facility:

- As part of the daily equipment inspection, all mobile equipment is inspected once per shift for leaks and spills;
- A vehicle and equipment inspection and maintenance program has been developed for the facility;
- Regularly scheduled vehicle and equipment inspections are performed to identify fluid leaks;
- Training requirements for personnel involved in vehicle and equipment operations, inspection, and maintenance;
- Major items of equipment that are stored or used outdoors are cleaned on a regular basis to remove accumulated oil and grease from exterior surfaces (except as necessary for proper operation); and
- Vehicle and equipment maintenance is conducted within the enclosed maintenance building, to the extent possible.

In addition, during periodic site inspections, the inspector (a designated member of the SWPPT [refer to Section 3]) will determine whether potential pollution sources are being adequately controlled, and whether pollution controls specified in the SWPPP have been properly and effectively implemented. Inspections will be documented using a comprehensive Site Inspection Checklist (included as Appendix D), which will include the dates of inspection, items inspected, problems or concerns encountered, and corrective measures implemented. Periodic inspections will include, but are not limited to, the following items:

- Catch basins, to ensure that they are intact and functional;
- Discharge from the treatment system, to inspect for color, foam, and sheen;
- Facility-wide inspections, at least once per month, to identify areas of erosion and areas requiring sweeping;
- Stormwater treatment system, for buildup of sediments, grease, and related materials. The system is cleaned as needed;
- Spill kits, to ensure that they are adequately stocked in the event of a spill; and
- Proper function and implementation of all Stormwater BMPs.

4.2.3.1 Inspections of Material Handling Areas

The Regional Environmental Manager or his designee performs periodic inspections of areas where potential spills of significant materials or industrial activities could impact stormwater runoff. These areas include the yard and associated dock and parking areas, fluid-containing equipment exposed to stormwater; the oil storage area, the wash area, fueling areas, and stockpiles (Figure 2).

During inspections, material handling systems such as valves, tanks, and drums are observed for evidence of damage, failure, or leakage. Failure of these items could potentially result in leaks or spills on the site that could enter the stormwater system. Inspections are documented on the Site Inspection Checklist (Appendix D).

4.2.3.2 Inspections of Stormwater Collection System Infrastructure

In addition to the weekly catch basin inspections discussed in Section 4.2.2, periodic inspections of the stormwater treatment system and catch basins are included in the Site Inspection Checklist, along with inspection of the facility outfall (Outfall 001; Figure 2). These facilities are inspected to determine if maintenance is needed. The stormwater system is also inspected per the Operation and Maintenance (O&M) manual (Parametrix 2012 – Reissued 2022).

4.2.3.3 Maintenance

The treatment system is cleaned and maintained per the O&M manual to remove accumulated sludge in the system. Floatable wastes and liquids are pumped from the system as needed and inspections of these and other on-site systems are conducted periodically.

Maintenance and/or repair of the treatment system, catch basins, materials handling and storage areas, materials transfer equipment, and containment curbing is conducted as needed, based upon observations made during the periodic inspections. Cleaning of catch basins is conducted bi-weekly or more frequently as needed. Cleaning, maintenance, and repair activities will be performed in such a manner as to minimize the discharge of pollutants to the stormwater system. In addition, it is GMT's policy to:

- Conduct maintenance activities in designated areas (see maintenance building and washing area; Figure 2);
- Conduct fueling operations in designated areas (Figure 2) using specific BMPs (see also Section 4.2.5); and
- Use appropriate storage containers compatible with the fluid content that are structurally sound and durable and have liquid-tight, sealable openings.

4.2.4 Spill Prevention and Spill Response Plan

The operating methods, structures, and equipment discussed in this SWPPP are intended to minimize the potential for the chemical releases to stormwater at the GMT facility. The pollution prevention team has the primary responsibility for implementation of the stormwater pollution prevention procedures, and at least one member of the team is on-call 24 hours a day.

In addition to this SWPPP, the facility has an SPCC Plan in place. All facility employees involved in industrial activities at the site are trained in stormwater protection under this SWPPP (see Employee Training in Section 6) and spill prevention, control, and response under the SPCC Plan. These trained employees conduct material transfer operations and are responsible for preventing spills and for responding to and cleaning up spills, if they should occur. The facility SPCC plan is discussed in more detail in Section 5.

4.2.5 Source-Specific Operational BMPs

Source-specific BMPs are employed for seven operations at the facility: loading/unloading of liquid and dry material; mobile fueling of vehicles; fixed station fueling of vehicles; liquid transfer to fixed, on-site aboveground storage tank (ASTs) (diesel and gasoline ASTs); liquid chemical storage in containers; outdoor, uncovered storage of raw materials (metals and ASR); and outdoor vehicle washing. The operations are discussed below, and detailed, source-specific BMPs for these operations are included in Appendix E. The BMPs included in Appendix E are standard BMPs from the Stormwater Management Manual for Western Washington (Ecology 2012a, 2012b, 2012c) and are designed to cover a wide range of industrial facilities. *It is important to note that not all of the BMPs listed in these standard attachments are applicable at the GMT facility, because of the overall site BMP of complete stormwater treatment.*

All stormwater runoff from operations is captured and treated in the stormwater treatment system prior to discharge. In addition to the stormwater treatment system, GMT implements selected recommendations in the following BMPs, as needed, to minimize the potential impacts to stormwater from on-site operations.

4.2.5.1 Loading and Unloading of Liquid and Solid Materials

Loading and Unloading of liquid and solid materials occurs daily at the site. These materials include raw product (unprocessed metals), final product (metals and ASR), fuels, lubricants, hydraulic fluids and water treatment chemicals. A BMP for transfer operations in these areas is included in Appendix E-1.

4.2.5.2 Mobile Fueling of Vehicles and Heavy Equipment

Mobile fueling is the practice of filling vehicle fuel tanks from tanker trucks. GMT employs this practice for fueling at the site as needed. A BMP for mobile fueling operations is included in Appendix E-2.

4.2.5.3 Fixed Station Fueling of Vehicles and Heavy Equipment

There is a single fixed fueling station at the site, including both diesel and gasoline fueling (Figure 2). A BMP for fixed fueling operations is included in Appendix E-3.

4.2.5.4 Storage of Liquids in Permanent ASTs

GMT uses fixed ASTs to store diesel fuel, gasoline, various lubricants, used motor oil and stormwater (Figure 2). A BMP for storing liquids in fixed ASTs is included in Appendix E-4.

4.2.5.5 Storage of Liquids in Containers

GMT uses 55-gallon drums, totes, and other containers for the storage of liquids on-site. In general, these smaller containers are stored under cover and within secondary containment. A BMP for storing liquids in these types of containers is included in Appendix E-5.

4.2.5.6 Storage or Transfer (Outside) of Solid Raw Materials and Products

GMT raw materials and finished products are stored outside in the areas shown on Figure 2. A BMP for outside storage practices is included in Appendix E-6.

4.2.5.7 Washing Vehicles On-Site

GMT has a wash pad at the facility (Figure 2). This wash pad includes a blind sump for the collection of wash water and sludge. As needed, GMT transfers the wash water in the sump to the on-site stormwater treatment system. Sludge collected in the sump is characterized and then disposed of in an appropriate manner. A vehicle washing BMP is included in Appendix E-7.

4.2.6 Employee Training

GMT has an existing employee training program for stormwater protection, spill prevention, and response. See Section 6.

4.2.7 Inspections

The stormwater pollution prevention team is responsible for ensuring that SWPPP inspection requirements are met at the facility. The pollution prevention team assigns a designee to perform periodic inspections of areas where potential spills of significant materials or industrial activities could impact stormwater runoff (see Section 4.2.3). The inspection findings are recorded on field inspection forms and maintained on file at the facility. A typical inspection form used by GMT are included in Appendix D. Inspection findings will be reviewed by the stormwater pollution prevention team, and follow up activities (i.e., maintenance, cleanup actions, operational changes, etc.) will be determined as needed.

4.3 STRUCTURAL SOURCE CONTROL BEST MANAGEMENT PRACTICES

Structural source control BMPs are designed to prevent releases of pollutants from entering the stormwater system. The following structural source control BMPs are implemented at the GMT facility:

- The entire site is graded from the margins of the site inward. All stormwater runoff generated at the site is transported to the stormwater treatment system for treatment prior to discharge.
- The facility has curbs along the perimeter to prevent site stormwater from running off the site without treatment. The curbs are shown on Figure 2. These curbs are inspected and maintained on a regular basis.

- Recent improvements to former Tacoma Boat area include, installation of control curbing around the perimeter of the site, additional catch basins, and connection of stormwater drains to flow to centralized stormwater collection and stormwater treatment plant. Surface runoff from the wire chopper building will be directed to the nearest catch basin located southwest of the building (see Figure 2). This catch basin drains stormwater to the stormwater treatment plant.
- The entire site is covered with impermeable surfaces (buildings, asphalt, or concrete).
- Major fuel storage (ASTs and drums) and significant material storage facilities are stored inside concrete secondary containment structures. The containment structures are designed to contain 110 percent of the tank volume of the largest AST within the containment structure. In addition, these structures are located under cover to prevent contamination of stormwater runoff during normal fueling and significant material transfer operations.
- A wheel wash is used by all vehicles that enter the industrial area to remove dirt from tires and minimize trackout.

The fuel/significant material containment structures, cap, curb, significant material storage containers (ASTs/drums, vehicles), and berms are routinely inspected and maintained to ensure their integrity.

4.4 TREATMENT BEST MANAGEMENT PRACTICES (BMPs)

Stormwater which collects at the site during storm events may become contaminated due to contact with metal debris, by-products of the recycling operation (i.e. ASR), equipment, and equipment maintenance products (i.e., fuels, oils, lubricants). The principal stormwater contaminants that may result from contact with these products and materials are copper, lead, zinc, oil and grease, polychlorinated biphenyls (PCBs), and total suspended solids (TSS). The treatment plant has the ability to treat 700 gpm and is designed to handle the 10-year, 24-hour storm event for both GMT and Tacoma Boat. GMT maintains a stormwater treatment system that is designed to treat stormwater runoff containing these contaminants. The stormwater treatment plant was constructed in 2010/11 with increased capacity to treat the additional stormwater from the former Tacoma Boat area and to provide greater capacity to treat up to a 10-year, 24-hour storm event, and to continue to meet the NPDES permit discharge limitations. The design storm is expected to generate a maximum discharge rate from the treatment system of approximately 700 gallons per minute (gpm).

The treatment system includes an underground stormwater drainage collection and conveyance system to collect stormwater from the paved areas and convey it into underground concrete lift stations. The piping and sump system on the paved area are designed to collect the peak flow from a 10-year, 24-hour storm event.

The stormwater treatment system consists of six main unit operations: 1) pretreatment, 2) chemical mixing, 3) coagulation and flocculation, 4) clarification, 5) sludge thickening, sand filtration, activated carbon filtering, and 6) sludge dewatering. A programmable logic controller (PLC) control system is used to operate the system.

Stormwater is collected from the site; floating oils and grease, floatable debris, and initial sediment removal occurs in a hydrodynamic separator before the lift stations. The lift stations pump the stormwater to three storage and equalization tanks where additional solids settlement can occur.

Pumps transfer the stormwater from the storage and equalization tanks to the treatment system. An injection system doses the water with polyaluminum chloride as the water flows to a chemical mix tank where it is mixed with sodium hydroxide to induce separation of suspended solids and any remaining oil and grease. An anionic polymer is added to induce chemical

coagulation and flocculation. Further separation occurs in an inclined plate clarifier and the precipitated solids are pumped to the sludge thickening tanks where the solids thicken. Clarified effluent is discharged to an effluent surge tank and then pumped through a media filtration and polishing system. Effluent from the polishing system is then discharged to the Hylebos Waterway via a diffuser outfall in the Hylebos Waterway approximately 150 feet from the bank of the waterway west of the barge dock. The main components of this system are shown on Figure 2. Additional details of the design and O&M of the treatment system can be found in the O&M manual for the system.

Sludge is pulled from the bottom of the primary sludge thickening tanks, mixed with a lime slurry, and pumped to the secondary sludge thickening tank. The sludge is then pumped to a filter press for dewatering. The filter cake is collected from the filter press, characterized, and disposed within a landfill. Filtrate from the filter press and supernatant from the sludge thickening tanks is collected in a supernatant surge tank and then recycled to the chemical mix tank.

In addition to operating the main treatment system, GMT has their own vacuum truck for cleaning the site stormwater catch basins and sweeper trucks to keep travel lanes clear of debris. Wastes generated from cleaning the catch basins and sweeping are appropriately characterized and disposed of in a permitted solid waste landfill.

4.5 STORMWATER PEAK AVERAGE RATE AND VOLUME CONTROL BEST MANAGEMENT PRACTICES

The current NPDES permit (Appendix A, Section S1, Paragraph B) allows for the bypass of the treatment system (discharge of untreated stormwater) when storm events in excess of the 5-year, 24-hour storm occur. Only stormwater in excess of the 5-year 24-hour storm flow may be discharged without treatment. Bypass events require notification to Ecology within 24 hours of the beginning of the bypass and must be followed up within 14 days with data to verify that the storm event triggering the bypass was greater than the 5-year, 24-hour storm.

The stormwater treatment system (Section 4.4) is designed to collect, treat, and discharge stormwater from up to a 10-year, 24-hour storm (700 gpm). The three stormwater storage and equalization tanks (T-101, T-102, and T-103) receive water from the three lift stations and have a total combined capacity of 1,000,000 gallons of stormwater storage. These tanks equalize the intermittent flow of stormwater from the lift stations, allowing the bulk of suspended solids time to settle out. At the maximum stormwater treatment rate of 700 gpm, these stormwater storage and equalization tanks provide enough storage to allow for the collection and treatment of stormwater runoff from a 10-year, 24-hour design storm. If a storm event with the duration and intensity of the 10-year, 24-hour event is expected, the tanks must be emptied prior to the storm event to allow enough equalization capacity.

Emergency bypass overflow is to the Hylebos Waterway through an 18-inch storm drain (Outfall No. 002) from Lift Station No. 1 (LS-010). Outfall No. 002 discharges beneath the stairs leading toward the former graving slip and into the waterway north of the GMT dock (Figure 2). A high water level control in Lift Station No. 1 (LS-010) will activate a system alarm when the water level within the lift station is about to crest the top of the lift station. The alarm is indicative that all three storage and equalization tanks are full. When the alarm is activated, the operator will assess the situation and contact the General Manager and Regional Environmental Manager in Table 3-1. Only when the operator has received permission, may the bypass gate valve located at Lift Station No. 1 (LS-010) be opened.

Another bypass (Outfall No. 003) is located under the dock of Tacoma Boat. The bypass is accessed by opening the manhole on Tacoma Boat to allow stormwater to enter the conveyance line and discharge. This manhole elevation is set at the predicted 10-year, 24-hour storm level.

4.6 EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES

The 28-acre GMT facility is completely paved or otherwise covered with impermeable surfaces (buildings). Physical degradation of pavement is one source of on-site sediment generation. To manage this stormwater pollution source, GMT maintains a constant schedule for maintaining and repairing damaged portions of the site's pavement due to heavy wear from site equipment (front end loaders, cranes, etc.) and semi-trucks.

In addition, the following measures have been implemented at the site to control sediment and erosion:

- A treatment system is in place at the facility to treat the stormwater runoff generated at the Site. The treatment system includes hydrodynamic separator, chemical precipitation, and clarification;
- All catch basins at the facility are equipped with sediment traps. The catch basins are cleaned out using a vacuum truck on a periodic basis;
- Accessible areas are swept using a vacuum/broom sweeper truck on an average of once per week;
- Facility-wide inspections are conducted at least once per month to identify areas of erosion, damaged pavement, and areas requiring sweeping; and
- Drain covers are available and may be used as needed to provide temporary protection from spills during some facility operations (fueling transfer, etc.).

No additional erosion and sediment control BMPs are required at the facility.

5. SPILL PREVENTION CONTAINMENT AND CONTROL

In addition to this SWPPP, the facility has a SPCC Plan in place. All facility employees involved in industrial activities at the site are trained in stormwater protection under this SWPPP and spill prevention, control, and response under the SPCC Plan. These trained employees conduct material transfer operations and are responsible for preventing spills and for responding to and cleaning up spills, if they should occur.

5.1 SPILL KITS

Spill response kits are located throughout the facility. Spill kit locations are shown on figures provided in the SPCC Plan. Typically, each spill response kit consists of a wheeled salvage drum with absorbent socks, pads, and pillows, disposable bags and ties, gloves, goggles, instruction book, and material safety data sheets (SDS). The spill kits are for immediate response and for small spills and are designed to absorb up to 35 gallons. Also, 55-gallon drums filled with bags of floor dry are often found next to the spill kits. For larger spills contact the Environmental Department immediately. Approximately 1,000 feet of oil containment booms are located near the concrete dock for use by the cranes or vessels in the event an oil spill into the nearby Hylebos Waterway occurs.

5.2 GENERAL SPILL CLEANUP

The SPCC Plan details the specific procedures to be followed in the event of a spill or release of oil, fuel, or other material at the facility. A copy of the SPCC Plan is maintained at the facility as a companion to the SWPPP.

Potential causes of spills or leaks of significant materials at the facility could include container failures, equipment or vehicle leaks, and spills of shredded materials, and/or ASR during handling or transport operations. Frequent inspections of storage, maintenance, and processing areas and inspections of vehicles and equipment are intended to identify potential problem areas and to allow the timely detection of any spillage prior to adversely impacting the storm sewer system or reaching surface waters.

Spill prevention and response provisions include the following:

- Operations personnel are equipped with radios and/or cellular phones to provide immediate communication in the event of an accidental release.
- Spill response equipment, including containment and absorbent booms, absorbent socks and pads, and related safety equipment, are maintained on-hand in spill kits placed in strategic locations throughout the site (see SPCC Plan for spill kit locations).
- An adequate supply of additional absorbent and containment booms and similar items are available in the maintenance building. Spilled materials are cleaned up using dry methods whenever possible.
- Containers of liquids, including oils and other petroleum products, are stored within secondary containment, or are placed on spill containment pallets; tanks containing diesel or gasoline are of double-wall construction and/or are placed on concrete foundations surrounded by a concrete containment structure. The containment structures are covered to prevent rainfall from entering the containment.
- Drip pans are often placed beneath vehicles and equipment that exhibit evidence of potential oil or fluid leakage, and that are parked or stored for periods longer than one shift (8 hours).

- Containers are periodically inspected to ensure that they are closed, properly labeled, and in good condition.
- Spills in the outdoor areas of the facility drain to the facility stormwater collection system and are routed to the stormwater treatment system (Figure 2) for treatment prior to discharge.
 - The hydrodynamic separator includes oil/water separation chamber to capture and contain releases of hydrocarbons.
 - Lift stations that pump stormwater to the storage tanks are equipped with sensors and alarms to detect hydrocarbon spills.

5.3 REPORTING AND DOCUMENTING SPILLS

The SPCC Plan provides telephone numbers of key personnel who should be notified in case of a release, as well as the numbers of regulatory agencies that may have to be notified depending upon the magnitude and severity of the release. The SPCC Plan also includes procedures for documenting spills and releases.

6. EMPLOYEE TRAINING

GMT has an existing employee training program for stormwater protection, spill prevention, and response. Required site employees involved in industrial operations receive initial (upon hiring) and ongoing training in corporate policy, standard operating procedures, spill prevention, and response. The training program addresses stormwater protection procedures per the SWPPP, and spill prevention, control, and response procedures per the facility SPCC Plan. The stormwater treatment system O&M manual contains a health and safety training program for plant operators.

Operations personnel begin their stormwater training by going through the new employee orientation program. Additional training is provided by the facility's environmental and safety staff, and includes the following:

- Information on the acceptability and unacceptability of certain types of scrap and other materials;
- Proper procedures for containing or otherwise isolating unacceptable materials and spills;
- Locations of spill response kits and other emergency equipment; and
- Proper notification procedures.

Training is conducted in-house through the company's Cornerstone Training Program (included as Appendix F). Additionally, training is conducted as needed. Documentation of training is found on-line and sometimes on Training Record forms. Training Records are maintained for each employee for a minimum of five years.

In addition to employee training, GMT strives to educate its scrap suppliers regarding scrap acceptability, both to prevent improper receipt of unacceptable materials, and to protect site stormwater from potential pollution sources. GMT has a written scrap acceptance policy which is distributed to suppliers in periodic mailings and in frequent hand-outs when entering or exiting the facility. The policy identifies specific items that cannot be accepted, as well as particular preparation requirements for other items. The policy is periodically reviewed and updated, and updates are communicated promptly to GMT suppliers. Annual training of this type is provided to select employees.

The facility pollution prevention team is responsible for ensuring that the existing training program includes the components of the SWPPP and that all employees are trained as required in the SWPPP.

7. STORMWATER MONITORING PLAN

This section discusses GMT's NPDES discharge permit, and sampling, testing, and reporting requirements for the facility. The information in this section is also included in *Operation and Maintenance Manual for Stormwater Treatment Facility* (Parametrix, 2012)

7.1 DISCHARGE LIMITS

The stormwater treatment system consistently meets all limits regulated under the discharge permit. The current NPDES discharge limits are shown in Table 7-1.

Table 7-1. NPDES Treated Stormwater Effluent Limits: Outfall 001

Parameter	Average Monthly	Maximum Daily
Copper		15.4 µg/L
Lead		23 µg/L
Zinc		225 µg/L
Total PCBs		7 pg/L
Chemical Oxygen Demand (COD)		914 mg/L
Total Suspended Solids	50 mg/L	100 mg/L
Oil and Grease	10 mg/L	15 mg/L
pH	Daily minimum is equal to or greater than 6.0, and the daily maximum is less than or equal to 9.0.	
Acute Whole Effluent Toxicity (WET) Limit	Meet the acute WET toxicity limit as established in Special Condition S7, permit No WA0040437	

Notes: microgram/Liter (µg/L), milligram/Liter (mg/L), picogram/Liter (pg/L)

The current NPDES permit does not specify discharge flow limitations; however, flows are hydraulically restricted by the size of the treatment system as well as by the size of the discharge force main and port diffuser. Discharge of untreated stormwater is allowed when storm events in excess of a 10-year, 24-hour storm occur. Notice of bypass must be submitted to Ecology within 24 hours of the beginning of the bypass. Specifics regarding bypass events can be found in Section S1, Paragraph B of the NPDES permit in Appendix A.

7.2 SAMPLE COLLECTION AND HANDLING

This section describes the permit requirements for sampling at GMT. Sampling methods and locations are based on the NPDES permit requirements. A copy of the GMT sampling Standard Operating Procedure (SOP) is included in Appendix G.

Some of the monitoring required is completed by automated sensors (pH and flow rates) installed at specific locations within the piping and equipment. Water quality samples will be collected manually and submitted for analysis. The following sections describe the type of samples required, and the frequency that the samples must be collected.

7.2.1 Parameters and Test Procedures

Effluent sampling and monitoring will be conducted as per NPDES permit requirements. The effluent samples are collected at the pressure gauge purge valve after the effluent surge tank

pump (P-300). Table 7-2 presents the parameters to be monitored or sampled, the sampling interval, and the analytical methods to be used.

Table 7-2. Analytical Methods, Sample Method, Sample Containers, Preservation, and Holding Time

Parameter	Sample Method	Analysis Method	Container	Preservation ^a	Holding Time
Chromium (total)	Composite	EPA 200.7	500 mL poly	Ice to 4°C, HNO ₃	6 months
Copper	Composite	EPA 200.7	500 mL poly	Ice to 4°C, HNO ₃	6 months
Lead	Composite	EPA 200.7	500 mL poly	Ice to 4°C, HNO ₃	6 months
Mercury	Grab	EPA 1631E	250 mL fluoropoly	Ice to 4°C, HNO ₃	28 days
Nickel	Composite	EPA 200.7	500 mL poly	Ice to 4°C, HNO ₃	6 months
Zinc	Composite	EPA 200.7	500 mL poly	Ice to 4°C, HNO ₃	6 months
Oil and Grease	Grab	EPA 1664A	1 L amber	Ice to 4°C, H ₂ SO ₄	28 days
Total PCBs	Composite	EPA 608	2-500 mL amber	Ice to 4°C	7/40 days
PCB Aroclor 1242	Composite	EPA 608/625	2-500 mL amber	Ice to 4°C	7/40 days
Total PAHs ^b	Composite	EPA 625	2-500 mL amber	Ice to 4°C	7/40 days
Bis (2-ethylhexyl phthalate (BEHP)	Composite	EPA 606/625	2-500 mL amber	Ice to 4°C	7/40 days
COD	Composite	EPA 410.4	250 mL amber	Ice to 4°C, H ₂ SO ₄	28 days
TSS	Composite	SM 2540D	1 L poly	Ice to 4°C	7 days
Priority Pollutants	Composite	Various	Various	Various	Various
Acute WET Testing^c					
pH	Continuous	Metered	N/A	N/A	N/A
Flow	Continuous	Metered	N/A	N/A	N/A
Temperature	Continuous	Metered	N/A	N/A	N/A

^a Celsius (C).

^b polycyclic aromatic hydrocarbon (PAH).

^c See Special Condition S7 of the NPDES permit (Appendix A).

Samples will be placed into the appropriate sample containers provided by the analytical laboratory. Records of certification shall be kept by the laboratory (for laboratory-supplied supplies) in the project file. All samples will be submitted to a commercial analytical laboratory certified by Ecology to perform the required analyses. Laboratory reporting limits will be verified prior to analyses to ensure that, at a minimum, reporting limits for each analyte are equal to or lower than the NPDES permit for the system.

Accurate tests are crucial to the efficient operation of the stormwater treatment system. Sampling procedures must be performed correctly and consistently. The following steps shall be followed by the operator to obtain quality and representative samples:

1. Samples collected on a routine basis must be taken from the same location using the same specific procedures.
2. Samples shall be taken at locations where the water is as completely mixed as possible.
3. Preservation techniques such as refrigeration or chilling of samples in ice will be utilized.

7.2.2 Sample Timing Requirements

The required frequency of monitoring is shown in Table 7-3.

Table 7-3. NPDES Permit Monitoring Requirements

Parameter	Method	Monitoring Requirements	
		Minimum Frequency	Sample Type
Copper (µg/L)	EPA 200.8	Monthly	Composite
Lead (µg/L)	EPA 200.8	Monthly	Composite
Zinc (µg/L)	EPA 200.7/200.8	Monthly	Composite
Total PCBs (µg/L)	EPA 8082	Monthly	Composite
PCB Aroclor 1242	EPA 608/625	Monthly	Composite
Total Suspended Solids (mg/L)	EPA 160.2	Monthly	Composite
Oil and Grease (mg/L)	EPA 1664	Monthly	Grab
pH	Per manufacturer's specifications	Continuous	Metered and Recorded
Flow	Per manufacturer's specifications	Continuous	Metered and Recorded
Temperature	Per manufacturer's specifications	Continuous	Metered and Recorded
Chromium (total) (µg/L)	EPA 200.7	Quarterly	Composite
Mercury (µg/L)	EPA 1631E	Quarterly	Composite
Nickel (µg/L)	EPA 200.8	Quarterly	Composite
Total PAHs (µg/L)	EPA 625	Quarterly	Composite
Bis (2-ethylhexyl phthalate (BEHP)	EPA 606/625	Monthly	Composite
Chemical Oxygen Demand (COD) (µg/L)	EPA 410.2	Monthly	Composite
Priority Pollutants	Appendix A From 40 CFR 423	Once per Permit Cycle	Composite
Acute and Chronic WET Testing	See NPDES Permit in Appendix A	Twice per Permit Cycle	Composite

Note: See NPDES Permit Condition S1 for definitions and details.

7.3 SAMPLE RECORDS

Recordkeeping and reporting of sampling and testing serve as invaluable tools for:

- Use in tracking down operational problems.
- Identifying the need for operation adjustments.
- Identifying the success of operation adjustments.
- Complying with discharge permit recording and record keeping requirements.

7.3.1 Chain-of-Custody

Samples will be placed in a cooler following collection and chilled to approximately 4 degrees Celsius (C). Following completion of sampling, all samples will be transported to the analytical

laboratory, as appropriate. Samples which are routinely delivered to the laboratory on the same day as collection may not have sufficient time to chill to 4 degrees C.

The chain-of-custody procedures used for this project will provide an accurate written or computerized record that can be used to trace the possession of each sample from the time each is collected until the completion of all required analyses. A sample is in custody if it is in any of the following places:

- In someone's physical possession.
- In someone's view.
- In a secured container.
- In a designated secure area.

All samples will be maintained in custody until formally transferred to the laboratory under a written chain-of-custody. Samples will be kept in sight of the sampling crew or in a secure, locked vehicle at all times. Samples that leave the custody of personnel will be sealed by placing a signed and dated Custody Seal across the seam of the shipping container.

The original hard (paper) copies of all notes and laboratory reports will be stored in the project file. Photocopies of these documents should be prepared for working copies as needed. Data may be recorded in bound notebooks. The team members shall review the data for completeness prior to placing it in the files.

The laboratory data reports will be archived in the project files. The electronic data will be incorporated into Excel spreadsheets and archived onto electronic media and placed in the project file.

7.4 REPORTING RESULTS

Reporting requirements for Ecology are explained in the facility's NPDES permit. Sampling results are reported monthly to Ecology. Reports are submitted using the department's approved Discharge Monitoring Report (DMR) and must be submitted electronically through Ecology's Water Quality Permitting Portal. Instructions for submitting DMRs via the electronic portal are included in S3 of the NPDES permit. DMRs must be received by Ecology no later than the 15th day of the month following the monitoring period (for example, a DMR reporting results for samples collected in June needs to be submitted to Ecology by July 15).

8. VISUAL INSPECTIONS

In addition to the monitoring of discharge from Outfall 001, the permit also requires that the facility conduct: 1) an annual visual wet season observations of the stormwater system; and, 2) an annual dry season inspection for illicit, non-stormwater discharges to the stormwater system. These inspections are discussed in the following sections.

8.1 ANNUAL VISUAL STORMWATER INSPECTIONS

An visual stormwater inspection is conducted monthly during the wet season (October 1 through April 30). The inspection will be conducted during a rainfall/runoff event by a member of the SWPPP team. This inspection is conducted to document the accuracy of information presented in this SWPPP; verify the proper implementation of the SWPPP BMPs; and determine if the implemented BMPs are adequate. This visual inspection should document:

- Date and time of inspection;
- Estimated time of start of rainfall/runoff event;
- Name of inspector;
- SWPPP discrepancies (if any);
- Visual observations: suspended solids, oil and grease (sheens), discoloration, turbidity, odor, floating materials;
- Evaluation of adequacy of SWPPP; and
- Unusual circumstances encountered.

The results of the annual inspection will be recorded on the visual inspection form included in Appendix B. The documented results of the inspection must be signed by an authorized GMT representative, and maintained in the facility's stormwater records.

8.2 NON-STORMWATER DISCHARGE INSPECTION

GMT conducts a monthly dry season (May 1 – September 30) inspection of the stormwater facilities to determine if any unpermitted non-stormwater discharges are flowing into the stormwater system.

To conduct the inspection, GMT follows the suggested BMP included in Appendix A of the Ecology stormwater guidance document (Ecology 2004 [Appendix A, BMP #3]). Under this BMP, designated personnel:

- Conduct a dry season inspection of the stormwater system by observing the main lift stations which collect all stormwater and non-stormwater flows at the site. The inspection will occur when there has been no precipitation for a minimum of 7 days prior to the inspection;
- Record the locations of any flow identified in the stormwater system during the inspection, attempt to trace the flow back to the point where it is entering the system, and identify the source of the flow (i.e., stormwater, illicit connection, groundwater infiltration); and
- Complete the non-stormwater discharge inspection form included in Appendix C of this SWPPP, and maintain a copy of the completed form in the facility stormwater records file.

If illicit, non-stormwater discharges are identified, GMT will immediately notify Ecology. GMT will work with Ecology to identify the source of the illicit discharge and either stop the discharge, disconnect the discharge from the stormwater system and reconnect the discharge to the sanitary sewer system (if permitted), or apply for a National Pollution Discharge Elimination System (NPDES) permit for the discharge to go to the stormwater system. GMT will document the follow up actions taken to address any identified illicit, non-stormwater discharges and provide this information to Ecology.

If GMT cannot complete the illicit, non-stormwater discharge inspection for some portions of the system, a non-stormwater discharge and failure to certify notification form must be completed. This form is also included in Appendix C. If the failure to certify could result in the discharge of pollutants in a significant amount, the failure to certify must be reported to Ecology immediately and a report must be submitted to Ecology within 30 days detailing the circumstances of the failure to comply and listing actions taken to address the reasons for the failure.

9. RECORDKEEPING AND REPORTING

9.1 RECORDKEEPING

Records documenting stormwater pollution control activities will be maintained on file at the facility and shall be provided to Ecology upon request. Records will be kept on file for a minimum of 3 years. These records include the following:

- A file with copies of all reports, records, and forms documenting inspection, maintenance, repair, and training activities conducted to address the BMPs identified in the SWPPP;
- Spills or leaks of significant materials that impacted or had the potential to impact stormwater will be recorded in a spill or leak report (see EP for spill reporting and recordkeeping). The report will include the date, time, person making the report, type of material spilled or leaked, quantity of material, location, action taken for clean-up, measures taken to prevent reoccurrence, and the date and time that the spill clean-up was completed;
- A file of all historic Discharge Monitoring Reports generated by the facility will be maintained; and
- Copies of this SWPPP and any amendments to the SWPPP will be maintained in the facility stormwater files.

9.2 REPORTING

The following submittals to Ecology are required by the facility permit:

- Discharge Monitoring Report (DMR) – Submit monthly with the results of stormwater monitoring (Section 7). DMR submittal dates are the 15th day of the month following the monitoring month. DMR reports must be submitted regardless of whether the facility was discharging during the monitoring month.
- Non-Compliance Notification – Submit a notice of non-compliance to Ecology by telephone to the industrial unit permit manager within 24 hours from the time the Permittee becomes aware of any conditions listed in Section S3, Part F, Paragraph 2, Items a through e of the permit;
- Non-Compliance Reporting – Submit a written report within five days of the time that the Permittee becomes aware of any event required to be reported as a non-compliance per Section S3, Part F, Paragraph 2, Items a through e of the permit. The written report must contain; a description of the non-compliance and its cause; the period of non-compliance, including exact dates and times; the estimated time non-compliance is expected to continue if it has not been corrected; steps taken or planned to reduce, eliminate, and prevent recurrence of the non-compliance; and, if the non-compliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow;
- Bypass events – GMT will notify Ecology within 24 hours of the beginning of any bypass event (see Section 4.5). GMT will follow up the notification with data demonstrating that the bypass event was caused by a 10-year, 24-hour storm. This data will be supplied to the Ecology within 14 days following the bypass event;
- Other permit violation – Violation of any permit conditions not listed in Section S3, Part F, Paragraph 2, Items a through e of the permit must be reported with the monthly

DMR described above. The report of the violation should include the same information required in the non-compliance report (see previous bullet);

- Other reports as specified in the permit (see Appendix A, page 4); and
- Submittals are uploaded to the Water Quality Portal on Secure Access Washington. Any paper submittals are sent to:

Industrial Unit Permit Coordinator
Department of Ecology
Southwest Region Office
P.O. Box 47775
Olympia, WA 98504-7775

9.3 ACCESS TO SWPPP

Copies of the SWPPP will be provided to each member of the pollution prevention team and to each individual on the distribution list at the beginning of this document. One copy of the SWPPP will be maintained in the treatment plant control room and one copy will be maintained in the administration building.

10. OPERATION AND MAINTENANCE

The stormwater treatment system is maintained and operated on a full-time basis by dedicated personnel. The system has a stand-alone O&M manual (Parametrix 2012 – Reissued 2022) that is used to maintain and operate the system. The O&M manual contains the following information:

- General information about the stormwater treatment system and treatment plant location; operator responsibilities; general guidelines for overall system maintenance; and related O&M documents.
- Overview and details of the pretreatment and treatment system by unit process and overall start-up and shutdown procedures for the system.
- Pertinent regulatory discharge requirements for operating the stormwater treatment system and the sampling, analysis, and reporting requirements.
- Operator training and health and safety requirements.
- Specific operation, maintenance, and inspection procedures.
- Recordkeeping and reporting.
- Standard operating procedures for routine activities such as starting and stopping the treatment system, effluent sampling, filter press operation, chemical tank filling, and maintenance of the hydrodynamic separator.

The stormwater system components that require periodic operation and maintenance include the stormwater treatment system, facility catch basins, containment structures, and shut-off valves. The locations of these system components are shown on Figure 2.

Catch basins are cleaned at least bi-weekly, and as needed, with a vacuum truck. Containment structures, facility curbs, significant materials storage areas/containers, and the stormwater treatment system infrastructure are inspected periodically. Discharge control valves are also tested periodically to ensure that the valves operate smoothly and fully close. Sweeping is performed weekly or as needed to minimize the accumulation of debris in traveled areas of the site.

If required, based upon the results of these inspections, maintenance of these systems will be scheduled promptly by the stormwater pollution prevention team.

If maintenance of any stormwater systems results in, or may result in, a bypass of the system during a runoff event, the bypass or potential to bypass will be reported to Ecology. Procedures for bypass notification are included in Section S1, Paragraph B of the permit (Appendix A).

11. REFERENCES

- Ecology (Washington State Department of Ecology). 2004. Guidance Manual for Preparing/Updating a Stormwater Pollution Prevention Plan for Industrial Facilities. Pub. No. 04-10-030. April.
- Ecology. 2006. A Guide for Implementing the Industrial Stormwater General NPDES Permit Requirements (Ecology Pub. No. 94-146, January 2006).
- Ecology. 2012a. Stormwater Management Manual for Western Washington: Volume I – Minimum Technical Requirements and Site Planning. Pub. No. 12-10-03. August.
- Ecology. 2012b. Stormwater Management Manual for Western Washington: Volume IV – Source Control BMPs. Pub. No. 12-10-030. August.
- Ecology. 2012c. Stormwater Management Manual for Western Washington: Volume V – Runoff Treatment BMPs. Pub. No. 12-10-030. August.
- GMT. 2021. Spill Prevention, Control and Countermeasures (SPCC) Plan. March 18, 2021.
- Parametrix. 2012. Reissued 2022. Operation and Maintenance Manual Stormwater Treatment Facility. Prepared for Schnitzer Steel Industries. October.

Appendix A

NPDES Permit



Issuance Date: July 26, 2019
Effective Date: August 1, 2019
Expiration Date: July 31, 2024

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE PERMIT NO. WA0040347**

State of Washington
DEPARTMENT OF ECOLOGY
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1342 et seq.

**Schnitzer Steel of Tacoma
1902 Marine View Drive
Tacoma, WA 98422**

is authorized to discharge in accordance with the Special and General Conditions that follow.

Facility Location:

1902 Marine View Drive
Tacoma, WA 98422

Treatment Type:

Chemical Coagulation and Precipitation

Categorical Industry:

Ferrous Metal Recycling

Receiving Water:

Hylebos Waterway, Commencement Bay

SIC Code: 5093

Richard Doenges
Southwest Region Manager
Water Quality Program
Washington State Department of Ecology

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SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions of this permit for additional submittal requirements.

Permit Section	Submittal	Frequency	First Submittal Date
S3.A	Discharge Monitoring Report (DMR)	Monthly	September 15, 2019
S3.A	Permit Renewal Application Monitoring Data	1/permit cycle	November 30, 2022
S3.F	Reporting Permit Violations	As necessary	
S4.A	Operations and Maintenance Manual	1/permit cycle	November 30, 2019
S4.A	Operations and Maintenance Manual Update or Review Confirmation Letter	Annually	November 30, 2020
S4.B	Reporting Bypasses	As necessary	
S5.C	Solid Waste Control Plan	1/permit cycle	November 30, 2022
S5.C	Modification to Solid Waste Plan	As necessary	Within 30 days of implementation
S6.A	Spill Plan	1/permit cycle	November 30, 2022
S6.A	Spill Plan Updates	As necessary	Within 30 days of update
S7.C	Acute Toxicity: Compliance Monitoring Reports	2/permit cycle	December 31, 2020 and December 31, 2022
S7.D	Acute Toxicity: Response to Noncompliance Reporting	As necessary	
S7.D	Acute Toxicity: TI/RE Plan	As necessary	
S8.A	Chronic Toxicity: Compliance Monitoring Reports	2/permit cycle	December 31, 2022 and December 31, 2023
S8.E	Chronic Toxicity: Response to Noncompliance Reporting	As necessary	
S8.E	Chronic Toxicity: TI/RE Plan	As necessary	
S9	COD, Total PCBs, PCB Arochlor 1242, and Bis (2-ethylhexyl) phthalate Source Control Study - Identification	1/permit cycle	November 30, 2019
S9	COD, Total PCBs, PCB Arochlor 1242, and Bis (2-ethylhexyl) phthalate Source Control Study – BMP Plan	1/permit cycle	May 31, 2020
S10	Stormwater Pollution Prevention Plan	1/permit cycle	September 30, 2019
S11	Nearshore Loading and Unloading Area Evaluation and Maintenance Report	Annually	December 31, 2019

Permit Section	Submittal	Frequency	First Submittal Date
S12.A	Sediment Baseline Sampling and Analysis Plan	1/permit cycle	August 31, 2021
S12.B	Sediment Chemistry Analyses	1/permit cycle	August 31, 2023
S13	Outfall Evaluation	1/permit cycle	August 31, 2023
S14	Application for Permit Renewal	1/permit cycle	November 30, 2022
G1	Notice of Change in Authorization	As necessary	
G4	Permit Application for Substantive Changes to the Discharge	As necessary	
G5	Engineering Report for Construction or Modification Activities	As necessary	
G7	Notice of Permit Transfer	As necessary	
G10	Duty to Provide Information	As necessary	
G21	Compliance Schedules	As necessary	

SPECIAL CONDITIONS

S1. DISCHARGE LIMITS

A. Process Wastewater Discharges (Outfall 001)

All discharges and activities authorized by this permit must be consistent with the terms and conditions of this permit.

The discharge of any of the following pollutants more frequently than, or at a level in excess of that identified and authorized by this permit violates the terms and conditions of this permit.

Beginning on the effective date of this permit, the Permittee is authorized to discharge treated stormwater, shredder cooling water, and residual dust control water to the Hylebos Waterway, Inner Commencement Bay via Outfall #001. The treated discharge is subject to complying with the following limits:

Effluent Limits: Outfall #001		
Parameter	Average Monthly ^a	Maximum Daily ^b
Total Copper		15.4 micrograms/liter (µg/L)
Total Lead		23 µg/L
Total Zinc		225 µg/L
Total PCBs ^c		7 picograms/liter (pg/L) ^d
Chemical Oxygen Demand (COD)		914 milligrams/liter (mg/L)
Total Suspended Solids (TSS)	50 mg/L	100 mg/L
Oil and Grease	10 mg/L	15 mg/L
	Minimum	Maximum
pH	6.0 standard units	9.0 standard units
Acute Toxicity Limit		
<p>The effluent limit for acute toxicity is:</p> <p>No acute toxicity detected in a test concentration representing the acute critical effluent concentration (ACEC).</p> <p>The ACEC means the maximum concentration of effluent during critical conditions at the boundary of the acute mixing zone, defined in Section S1.C of this permit. The ACEC equals 1.1% effluent. See S5.A for more information.</p>		
a	Average monthly effluent limit means the highest allowable average of daily discharges over a calendar month. To calculate the discharge value to compare to the limit, you add the value of each daily discharge measured during a calendar month and divide this sum by the total number of daily discharges measured.	

Effluent Limits: Outfall #001	
b	Maximum daily effluent limit is the highest allowable daily discharge. The daily discharge is the maximum discharge of a pollutant measured during a calendar day. For pollutants with limits expressed in units of mass, calculate the daily discharge as the total mass of the pollutant discharged over the day. This does not apply to pH or temperature.
c	If the Total PCB limitation is exceeded, then the Permittee must immediately re-assess potential sources for PCBs and control these sources through BMPs. This requires that the permittee collect samples to identify PCB sources and test them using EPA Method 1668C.
d	An estimated value falling between the detection level (DL) and quantitation level (QL) will not be used for enforcing the maximum daily limit if the daily maximum value consists of a single daily analysis.

B. Treatment System and Tacoma Boat Parcel Stormwater Bypasses (Outfalls 002 and 003)

Discharge of untreated storm water, shredder cooling water, and residual dust control water is allowed only when a storm event in excess of a five-year, 24-hour storm occurs. The Permittee must notify Ecology within 24 hours of the beginning of the bypass. The Permittee must supply Ecology with data to verify that the triggering storm event was greater than a five-year, 24-hour storm.

A bypass Discharge Monitoring Report, including monitoring data, of the bypass must be submitted to Ecology during the reporting period that the bypass occurred.

C. Mixing Zone Authorization

Mixing Zone for Outfall #001

Mixing zones are not authorized for total PCBs. The following paragraphs define the maximum boundaries of the mixing zones:

Acute Mixing Zone

The acute dilution factor for this mixing zone is 31.4. The acute mixing zone is approximately 9.3 feet long from the diffuser and has a width of approximately 6.8 feet. It is approximately 3 feet thick and rises approximately to 14 feet below the water surface. The concentration of pollutants at the edge of the acute zone must meet acute aquatic life criteria and human health criteria.

Chronic Mixing Zone

The chronic dilution factor for this mixing zone is 113.2. The chronic mixing zone is approximately 150 feet long from the diffuser and has a width of approximately 50 feet. The concentration of pollutants at the edge of the chronic zone must meet chronic aquatic life criteria and human health criteria.

Available Dilution (dilution factor)	
Acute Aquatic Life Criteria	31.4
Chronic Aquatic Life Criteria	113.2

Available Dilution (dilution factor)	
Human Health Criteria - Carcinogen	389
Human Health Criteria - Non-carcinogen	213

S2. MONITORING REQUIREMENTS

A. Monitoring Schedule

The Permittee must monitor in accordance with the following schedule and the requirements specified in **Appendix A**.

Parameter	Units & Speciation	Minimum Sampling Frequency	Sample Type
(1) Treated Stormwater, Shredder Cooling Water, and Residual Dust Control Water Effluent (Outfall 001)			
Flow	gallons/day (gpd)	Continuous ¹	Metered
pH ²	Standard Units (S.U.)	Continuous ¹	Metered
Temperature	Maximum Daily, Degrees Celsius	Continuous ¹	Metered
Total Suspended Solids (TSS)	milligrams/liter (mg/L)	Monthly ⁴	24-Hour composite ³
Oil and Grease	mg/L	Monthly ⁴	Grab ⁵
Chemical Oxygen Demand (COD)	mg/L	Monthly ⁴	24-Hour composite ³
Total Copper	micrograms/liter (µg/L)	Monthly ⁴	24-Hour composite ³
Total Lead	µg/L	Monthly ⁴	24-Hour composite ³
Total Mercury	nanograms/liter (ng/L)	Quarterly ⁶	24-Hour composite ³
Total Zinc	µg/L	Monthly ⁴	24-Hour composite ³
Total PCBs	pg/L	Monthly ⁴	24-Hour composite ³
PCB Aroclor 1242	pg/L	Monthly ⁴	24-Hour composite ³
Total PAHs	µg/L	Quarterly ⁶	24-Hour composite ³
Bis(2-ethylhexyl) phthalate (BEHP)	µg/L	Monthly ⁴	24-Hour composite ³
(2) Hylebos Waterway			
Temperature Upstream of Outfall 002	Maximum Daily, Degrees Celcius	Continuous ¹	Metered

Parameter	Units & Speciation	Minimum Sampling Frequency	Sample Type
(3) Treatment System Bypass (Outfall 002)			
Total Volume	gallons	Each Bypass Event	Estimate
Total Time of Bypass	hours	Each Bypass Event	Estimate
pH ²	Standard Units (S.U.)	Each Bypass Event ⁷	Metered
Temperature	Maximum Daily, Degrees Celsius	Each Bypass Event ⁷	Measured
Total Suspended Solids (TSS)	milligrams/liter (mg/L)	Each Bypass Event ⁷	Grab ⁵
Oil and Grease	mg/L	Each Bypass Event ⁷	Grab ⁵
Chemical Oxygen Demand (COD)	mg/L	Each Bypass Event ⁷	Grab ⁵
Total Copper	micrograms/liter (µg/L)	Each Bypass Event ⁷	Grab ⁵
Total Lead	µg/L	Each Bypass Event ⁷	Grab ⁵
Total Mercury	nanograms/liter (ng/L)	Each Bypass Event ⁷	Grab ⁵
Total Zinc	µg/L	Each Bypass Event ⁷	Grab ⁵
Total PCBs	pg/L	Each Bypass Event ⁷	Grab ⁵
PCB Aroclor 1242	pg/L	Each Bypass Event ⁷	Grab ⁵
Total PAHs	µg/L	Each Bypass Event ⁷	Grab ⁵
Bis(2-ethylhexyl) phthalate (BEHP)	µg/L	Each Bypass Event ⁷	Grab ⁵
(4) Treatment System Bypass (Outfall 003)			
Total Volume	gallons	Each Bypass Event	Estimate
Total Time of Bypass	hours	Each Bypass Event	Estimate
pH ²	Standard Units (S.U.)	Each Bypass Event ⁷	Metered
Temperature	Maximum Daily, Degrees Celsius	Each Bypass Event ⁷	Measured
Total Suspended Solids (TSS)	milligrams/liter (mg/L)	Each Bypass Event ⁷	Grab ⁵
Oil and Grease	mg/L	Each Bypass Event ⁷	Grab ⁵
Chemical Oxygen Demand (COD)	mg/L	Each Bypass Event ⁷	Grab ⁵
Total Copper	micrograms/liter (µg/L)	Each Bypass Event ⁷	Grab ⁵
Total Lead	µg/L	Each Bypass Event ⁷	Grab ⁵

Parameter	Units & Speciation	Minimum Sampling Frequency	Sample Type
Total Mercury	nanograms/liter (ng/L)	Each Bypass Event ⁷	Grab ⁵
Total Zinc	µg/L	Each Bypass Event ⁷	Grab ⁵
Total PCBs	pg/L	Each Bypass Event ⁷	Grab ⁵
PCB Aroclor 1242	pg/L	Each Bypass Event ⁷	Grab ⁵
Total PAHs	µg/L	Each Bypass Event ⁷	Grab ⁵
Bis(2-ethylhexyl) phthalate (BEHP)	µg/L	Each Bypass Event ⁷	Grab ⁵
(5) Acute Whole Effluent Toxicity Testing – Final Wastewater Effluent			
Additional requirements specified in Special Condition S7.			
(6) Chronic Whole Effluent Toxicity Testing – Final Wastewater Effluent			
Additional requirements specified in Special Condition S8.			
(7) Sediment Study			
As specified in Special Condition S12.			
(8) Permit Renewal Application Requirements – Final Wastewater Effluent			
See Appendix A to identify the specific pollutants in the priority pollutant groups listed below.			
Cyanide	µg/L		Grab ⁵
Total Phenolic Compounds	µg/L		Grab ⁵
Priority Pollutants (PP) – Total Metals	µg/L; ng/L for mercury	1/permit cycle	24-Hour composite ³ Grab for mercury
PP – Volatile Organic Compounds	µg/L	1/permit cycle	Grab ⁵
PP – Acid-extractable Compounds	µg/L	1/permit cycle	24-Hour composite ³
PP – Base-neutral Compounds	µg/L	1/permit cycle	24-Hour composite ³
PP - Dioxin	pg/L	1/permit cycle	24-Hour composite ³
PP – Pesticides/PCBs	pg/L	1/permit cycle	24-Hour composite ³
1.	Continuous means uninterrupted except for brief lengths of time for calibration, power failure, or unanticipated equipment repair or maintenance. The time interval for the associated data logger must be no greater than 30 minutes. The Permittee must collect representative samples when continuous monitoring is not possible.		
2.	The Permittee must report the instantaneous maximum and minimum pH monthly. Do not average pH values.		

Parameter	Units & Speciation	Minimum Sampling Frequency	Sample Type
3.	24-hour composite means a series of individual samples collected over a 24-hour period into a single container, and analyzed as one sample.		
4.	Monthly means once every calendar month.		
5.	Grab means an individual sample collected over a fifteen (15) minute, or less.		
6.	Quarterly sampling periods are January through March, April through June, July through September, and October through December. The Permittee must submit results by the 15th day of the month following the end of the quarter.		
7.	Samples and measurements must be collected as soon as possible, and not to exceed the first hour which the bypass occurs.		

B. Sampling and Analytical Procedures

Samples and measurements taken to meet the requirements of this permit must represent the volume and nature of the monitored parameters, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions affecting effluent quality.

Sampling and analytical methods used to meet the monitoring requirements specified in this permit must conform to the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136 (or as applicable in 40 CFR subchapters N [Parts 400–471] or O [Parts 501-503]) unless otherwise specified in this permit. Ecology may only specify alternative methods for parameters without limits and for those parameters without an EPA approved test method in 40 CFR Part 136.

C. Flow Measurement, Field Measurement, and Continuous Monitoring Devices

The Permittee must:

1. Select and use appropriate flow measurement, field measurement, and continuous monitoring devices and methods consistent with accepted scientific practices.
2. Install, calibrate, and maintain these devices to ensure the accuracy of the measurements is consistent with the accepted industry standard, the manufacturer's recommendation, and approved O&M manual procedures for the device and the wastestream.
3. Calibrate continuous monitoring instruments weekly unless it can demonstrate a longer period is sufficient based on monitoring records. The Permittee:
 - a. Must calibrate continuous pH measurement instruments using a grab sample analyzed in the lab with a pH meter calibrated with standard buffers and analyzed within 15 minutes of sampling.
4. Use field measurement devices as directed by the manufacturer and do not use reagents beyond their expiration dates.

5. Establish a calibration frequency for each device or instrument in the O&M manual that conforms to the frequency recommended by the manufacturer.
6. Calibrate flow-monitoring devices at a minimum frequency of at least one calibration per year.
7. Maintain calibration records for at least three years.

D. Laboratory Accreditation

The Permittee must ensure that all monitoring data required by Ecology for permit specified parameters is prepared by a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. Flow, temperature, settleable solids, conductivity, pH, and internal process control parameters are exempt from this requirement. The Permittee must obtain accreditation for conductivity and pH if it must receive accreditation or registration for other parameters.

S3. REPORTING AND RECORDING REQUIREMENTS

The Permittee must monitor and report in accordance with the following conditions. Falsification of information submitted to Ecology is a violation of the terms and conditions of this permit.

A. Discharge Monitoring Reports

The first monitoring period begins on the effective date of the permit (unless otherwise specified). The Permittee must:

1. Summarize, report, and submit monitoring data obtained during each monitoring period on the electronic discharge monitoring report (DMR) form provided by Ecology within the Water Quality Permitting Portal. Include data for each of the parameters tabulated in Special Condition S2 and as required by the form. Report a value for each day sampling occurred (unless specifically exempted in the permit) and for the summary values (when applicable) included on the electronic form.

To find out more information and to sign up for the Water Quality Permitting Portal go to: <http://ecyapwq/wqwebportal/>

2. Ensure that DMRs are electronically submitted no later than the dates specified below, unless otherwise specified in this permit.
3. Submit DMRs for parameters with the monitoring frequencies specified in S2 (monthly, quarterly, annual, etc.) at the reporting schedule identified below. The Permittee must:
 - a. Submit **monthly** DMRs **by the 15th day of the following month**.
 - b. Submit permit renewal application monitoring data in WQWebDMR as required in Special Condition S2 **by November 30, 2022**.

4. Enter the “No Discharge” reporting code for an entire DMR, for a specific monitoring point, or for a specific parameter as appropriate, if the Permittee did not discharge wastewater or a specific pollutant during a given monitoring period.
5. Report single analytical values below detection as “less than the detection level (DL)” by entering < followed by the numeric value of the detection level (e.g. < 2.0) on the DMR. If the method used did not meet the minimum DL and quantitation level (QL) identified in the permit, report the actual QL and DL in the comments or in the location provided.
6. Report single analytical values between the detection level (DL) and the quantitation level (QL) by entering the estimated value, the code for estimated value/below quantitation limit (j) and any additional information in the comments. Submit a copy of the laboratory report as an attachment using WQWebDMR.
7. Report the test method used for analysis in the comments if the laboratory used an alternative method not specified in the permit and as allowed in Appendix A.
8. Calculate average values and calculated total values (unless otherwise specified in the permit) using:
 - a. The reported numeric value for all parameters measured between the detection value and the quantitation value for the sample analysis.
 - b. One-half the detection value (for values reported below detection) if the lab detected the parameter in another sample from the same monitoring point for the reporting period.
 - c. Zero (for values reported below detection) if the lab did not detect the parameter in another sample for the reporting period.
9. Report single-sample grouped parameters (for example: priority pollutants, PAHs, pulp and paper chlorophenolics, TTOs) on the WQWebDMR form and include: sample date, concentration detected, detection limit (DL) (as necessary), and laboratory quantitation level (QL) (as necessary).

The Permittee must also submit an electronic copy of the laboratory report as an attachment using WQWebDMR. The contract laboratory reports must also include information on the chain of custody, QA/QC results, and documentation of accreditation for the parameter.

B. Permit Submittals and Schedules

The Permittee must use the Water Quality Permitting Portal – Permit Submittals application (unless otherwise specified in the permit) to submit all other written permit-required reports by the date specified in the permit.

When another permit condition requires submittal of a paper (hard-copy) report, the Permittee must ensure that it is postmarked or received by Ecology no later than the dates specified by this permit. Send these paper reports to Ecology at:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

C. Records Retention

The Permittee must retain records of all monitoring information for a minimum of three years. Such information must include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit. The Permittee must extend this period of retention during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

D. Recording of Results

For each measurement or sample taken, the Permittee must record the following information:

1. The date, exact place, method, and time of sampling or measurement.
2. The individual who performed the sampling or measurement.
3. The dates the analyses were performed.
4. The individual who performed the analyses.
5. The analytical techniques or methods used.
6. The results of all analyses.

E. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by Special Condition S2 of this permit, then the Permittee must include the results of such monitoring in the calculation and reporting of the data submitted in the Permittee's DMR unless otherwise specified by Special Condition S2.

F. Reporting Permit Violations

The Permittee must take the following actions when it violates or is unable to comply with any permit condition:

1. Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem.
2. If applicable, immediately repeat sampling and analysis. Submit the results of any repeat sampling to Ecology within 30 days of sampling.

a. Immediate Reporting

The Permittee must immediately report to Ecology and the Department of Health, Shellfish Program (at the numbers listed below), all:

- Collection system overflows discharging to marine surface waters.
- Plant bypasses discharging to marine surface waters.

Southwest Regional Office	360-407-6300
Department of Health,	360-236-3330 (business hours)
Shellfish Program	360-789-8962 (after business hours)

b. Twenty-Four-Hour Reporting

The Permittee must report the following occurrences of noncompliance by telephone, to Ecology at the telephone numbers listed above, within 24 hours from the time the Permittee becomes aware of any of the following circumstances:

- i. Any noncompliance that may endanger health or the environment, unless previously reported under immediate reporting requirements.
- ii. Any unanticipated bypass that causes an exceedance of any effluent limit in the permit (See Part S4.B., "Bypass Procedures").
- iii. Any upset that causes an exceedance of an effluent limit in the permit (See G.15, "Upset").
- iv. Any violation of a maximum daily or instantaneous maximum discharge limit for any of the pollutants in Section S1.A of this permit.
- v. Any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limit in the permit. This requirement does not include industrial process wastewater overflows to impermeable surfaces which are collected and routed to the treatment works.

c. Report within Five Days

The Permittee must also submit a written report within five days of the time that the Permittee becomes aware of any reportable event under subparts a or b, above. The report must contain:

- i. A description of the noncompliance and its cause.
- ii. The period of noncompliance, including exact dates and times.

- iii. The estimated time the Permittee expects the noncompliance to continue if not yet corrected.
- iv. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
- v. If the noncompliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow.

d. Waiver of Written Reports

Ecology may waive the written report required in subpart c, above, on a case-by-case basis upon request if the Permittee has submitted a timely oral report.

e. All other Permit Violation Reporting

The Permittee must report all permit violations, which do not require immediate or within 24 hours reporting, when it submits monitoring reports for S3.A ("Reporting"). The reports must contain the information listed in subpart c, above. Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

G. Other Reporting

1. Spills of Oil or Hazardous Materials

The Permittee must report a spill of oil or hazardous materials in accordance with the requirements of RCW 90.56.280 and chapter 173-303-145. You can obtain further instructions at the following website: <https://ecology.wa.gov/About-us/Get-involved/Report-an-environmental-issue/Report-a-spill>.

2. Failure to Submit Relevant or Correct Facts

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to Ecology, it must submit such facts or information promptly.

H. Maintaining a Copy of this Permit

The Permittee must keep a copy of this permit at the facility and make it available upon request to Ecology inspectors.

S4. OPERATION AND MAINTENANCE

The Permittee must, at all times, properly operate and maintain all facilities or systems of treatment and control (and related appurtenances), which are installed to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes keeping a daily

operation logbook (paper or electronic), adequate laboratory controls, and appropriate quality assurance procedures. This provision of the permit requires the Permittee to operate backup or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of this permit.

The Permittee must schedule any facility maintenance, which might require interruption of wastewater treatment and degrade effluent quality, during non-critical water quality periods and carry this maintenance out according to the approved O&M manual or as otherwise approved by Ecology.

A. Operations and Maintenance (O&M) Manual

1. O&M Manual Submittal and Requirements

The Permittee must:

- a. Update the O&M Manual that meets the requirements of 173-240-150 WAC and submit it to Ecology for approval **by November 30, 2019**.
- b. Review the O&M Manual at least annually and confirm this review by letter to Ecology **by November 30, 2020, and each year thereafter**.
- c. Submit to Ecology for review substantial changes or updates to the O&M Manual whenever it is incorporated.
- d. Keep the approved O&M Manual at the permitted facility.
- e. Follow the instructions and procedures of this manual.

2. O&M Manual Components

The O&M Manual must meet the requirements of WAC 173-240-150 and must include:

- a. Emergency procedures for plant shutdown and cleanup in the event of a stormwater treatment system upset or failure.
- b. A review of system components which if failed could pollute surface water or could impact human health. Provide a procedure for a routine schedule of checking the function of these components.
- c. Stormwater treatment plant process control monitoring schedule.
- d. Stormwater treatment system maintenance procedures.
- e. Maintenance procedures and schedules for the stormwater collection system including: all catch basins, catch basin inserts, and catch basin filter fabrics.
- f. Treatment system sampling protocols and procedures for compliance with the sampling and reporting requirements in this NPDES permit.

- g. Minimum staffing adequate to operate and maintain the treatment processes and carry out compliance monitoring required by the permit.
- h. Any directions to maintenance staff when cleaning, or maintaining other equipment or performing other tasks which are necessary to protect the operation of the treatment system (for example, defining maximum allowable discharge rate for draining a tank, blocking all floor drains before beginning the overhaul of a stationary engine).
- i. The procedure for allowing a bypass, resulting from a severe storm and associated monitoring and reporting (as per Special Condition S3.B) shall be described in the Manual.

B. Bypass Procedures

A bypass is the intentional diversion of waste streams from any portion of a treatment facility. This permit prohibits all bypasses except when the bypass is for essential maintenance, as authorized in special condition S4.B.1, or is approved by Ecology as an anticipated bypass following the procedures in S4.B.2.

- 1. Bypass for essential maintenance without the potential to cause violation of permit limits or conditions.

This permit allows bypasses for essential maintenance of the treatment system when necessary to ensure efficient operation of the system. The Permittee may bypass the treatment system for essential maintenance only if doing so does not cause violations of effluent limits. The Permittee is not required to notify Ecology when bypassing for essential maintenance. However the Permittee must comply with the monitoring requirements specified in special condition S2.B.

- 2. Anticipated bypasses for non-essential maintenance

Ecology may approve an anticipated bypass under the conditions listed below. This permit prohibits any anticipated bypass that is not approved through the following process.

- a. If a bypass is for non-essential maintenance, the Permittee must notify Ecology, if possible, at least 10 days before the planned date of bypass. The notice must contain:
 - A description of the bypass and the reason the bypass is necessary.
 - An analysis of all known alternatives which would eliminate, reduce, or mitigate the potential impacts from the proposed bypass.
 - A cost-effectiveness analysis of alternatives.
 - The minimum and maximum duration of bypass under each alternative.

- A recommendation as to the preferred alternative for conducting the bypass.
 - The projected date of bypass initiation.
 - A statement of compliance with SEPA.
 - A request for modification of water quality standards as provided for in WAC 173-201A-410, if an exceedance of any water quality standard is anticipated.
 - Details of the steps taken or planned to reduce, eliminate, and prevent recurrence of the bypass.
- b. For probable construction bypasses, the Permittee must notify Ecology of the need to bypass as early in the planning process as possible. The Permittee must consider the analysis required above during the project planning and design process. The project-specific engineering report as well as the plans and specifications must include details of probable construction bypasses to the extent practical. In cases where the Permittee determines the probable need to bypass early, the Permittee must continue to analyze conditions up to and including the construction period in an effort to minimize or eliminate the bypass.
- c. Ecology will determine if the Permittee has met the conditions of special condition S4.B.2 a and b and consider the following prior to issuing a determination letter, an administrative order, or a permit modification as appropriate for an anticipated bypass:
- If the Permittee planned and scheduled the bypass to minimize adverse effects on the public and the environment.
 - If the bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 - If feasible alternatives to the bypass exist, such as:
 - The use of auxiliary treatment facilities.
 - Retention of untreated wastes.
 - Stopping production.
 - Maintenance during normal periods of equipment downtime, but not if the Permittee should have installed

adequate backup equipment in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance.

- Transport of untreated wastes to another treatment facility.

S5. SOLID WASTES

A. Solid Waste Handling

The Permittee must handle and dispose of all solid waste material in such a manner as to prevent its entry into state ground or surface water.

B. Leachate

The Permittee must not allow leachate from its solid waste material to enter state waters without providing all known, available, and reasonable methods of treatment, nor allow such leachate to cause violations of the State Surface Water Quality Standards, Chapter 173-201A WAC, or the State Ground Water Quality Standards, Chapter 173-200 WAC. The Permittee must apply for a permit or permit modification as may be required for such discharges to state ground or surface waters.

C. Solid Waste Control Plan

The Permittee must submit all proposed revisions or modifications to the solid waste control plan to Ecology for review and approval **at least 30 days prior to implementation**. The Permittee must comply with the approved solid waste control plan and any modifications once approved. The Permittee must submit an update of the solid waste control plan **by November 30, 2022**.

S6. SPILL CONTROL PLAN

A. Spill Control Plan Submittals and Requirements

The Permittee must:

1. Review the plan at least annually and update the spill plan as needed. Submit any updates to the Spill Control Plan to Ecology **within 30 days**.
2. Follow the plan and any supplements throughout the term of the permit.
3. Submit a copy of the Spill Control Plan **by November 30, 2022**.

B. Spill Control Plan Components

The spill control plan must include the following:

1. A list of all oil and petroleum products and other materials used and/or stored on-site, which when spilled, or otherwise released into the environment, designate as

Dangerous Waste (DW) or Extremely Hazardous Waste (EHW) by the procedures set forth in WAC 173-303-070. Include other materials used and/or stored on-site which may become pollutants or cause pollution upon reaching state's waters.

2. A description of preventive measures and facilities (including an overall facility plot showing drainage patterns) which prevent, contain, or treat spills of these materials.
3. A description of the reporting system the Permittee will use to alert responsible managers and legal authorities in the event of a spill.
4. A description of operator training to implement the plan.

The Permittee may submit plans and manuals required by 40 CFR Part 112, contingency plans required by Chapter 173-303 WAC, or other plans required by other agencies, which meet the intent of this section.

S7. ACUTE TOXICITY

A. Effluent Limit for Acute Toxicity

The effluent limit for acute toxicity is:

No acute toxicity detected in a test concentration representing the acute critical effluent concentration (ACEC).

The ACEC means the maximum concentration of effluent during critical conditions at the boundary of the acute mixing zone, defined in Section S1.C of this permit. The ACEC equals 3.2% effluent.

B. Compliance with the Effluent Limit for Acute Toxicity

Compliance with the effluent limit for acute toxicity means the results of the testing specified in Section C show no statistically significant difference in survival between the control and the ACEC.

If the test results show a statistically significant difference in survival between the control and the ACEC, and Ecology has not determined the test result to be anomalous under Section D, and the test is otherwise valid, the result is a violation of the effluent limit for acute toxicity. The Permittee must immediately conduct the additional testing described in Section D.

The Permittee must determine the statistical significance by conducting a hypothesis test at the 0.05 level of significance (Appendix H, EPA/600/4-89/001). If the difference in survival between the control and the ACEC is less than 10%, the Permittee must conduct the hypothesis test at the 0.01 level of significance.

C. Compliance Testing for Acute Toxicity

The Permittee must:

1. Perform the acute toxicity tests with 100% effluent, the ACEC, and a control, or with a full dilution series.
2. Conduct acute toxicity testing on the final effluent twice; once in **September, 2020** and once in **September, 2022**. If no discharge occurs during the required month, the Permittee must notify Ecology by the end of the month and conduct sampling on the next representative discharge that occurs in the following month.
3. Submit a written report to Ecology no later than **December 31, 2020** and **December 31, 2022**, respectively. Further instructions on testing conditions and test report content are in Section E below.
4. The Permittee must perform compliance tests using each of the species and protocols listed below on a rotating basis:

Acute Toxicity Tests	Species	Method
Fathead minnow 96-hour static-renewal test	<i>Pimephales promelas</i>	EPA-821-R-02-012
Daphnid 48-hour static test	<i>Ceriodaphnia dubia</i> , <i>Daphnia pulex</i> , or <i>Daphnia magna</i>	EPA-821-R-02-012

D. Response to Noncompliance with the Effluent Limit for Acute Toxicity

If a toxicity test conducted under Section C determines a statistically significant difference in response between the ACEC and the control, using the statistical test described in Section B, the Permittee must begin additional testing within one week from the time of receiving the test results. The Permittee must:

1. Test the next four discharge events using the same test and species as the failed compliance test.
2. Test at least five effluent concentrations and a control to determine appropriate point estimates. One of these effluent concentrations must equal the ACEC. The results of the test at the ACEC will determine compliance with the effluent limit for acute toxicity as described in Section B.
3. Return to the original monitoring frequency in Section C after completion of the additional compliance monitoring.

Anomalous test results: If a toxicity test conducted under Section C indicates noncompliance with the acute toxicity limit and the Permittee believes that the test result is anomalous, the Permittee may notify Ecology that the compliance test result may be anomalous. The Permittee may take one additional sample for toxicity testing and wait for notification from Ecology before completing the additional testing. The Permittee must submit the notification with the report of the compliance test result and identify the reason for considering the compliance test result to be anomalous.

If Ecology determines that the test result was not anomalous, the Permittee must complete all of the additional monitoring required in this section. Or,

If the one additional sample fails to comply with the effluent limit for acute toxicity, then the Permittee must complete all of the additional monitoring required in this section. Or,

If Ecology determines that the test result was anomalous, the one additional test result will replace the anomalous test result for the purpose of determining compliance with the acute toxicity limit.

If all of the additional testing in S7.D.1 complies with the permit limit, the Permittee must submit a report to Ecology on possible causes and preventive measures for the transient toxicity event, which triggered the additional compliance monitoring. This report must include a search of all pertinent and recent facility records, including:

- Operating records
- Monitoring results
- Inspection records
- Spill reports
- Weather records
- Production records
- Raw material purchases
- Pretreatment records, etc.

If the additional testing in this section shows another violation of the acute toxicity limit, the Permittee must submit a Toxicity Identification/Reduction Evaluation (TI/RE) plan to Ecology within 60 days after the sample date (WAC 173-205-100(2)).

E. Sampling and Reporting Requirements

1. The Permittee must submit all reports for toxicity testing in accordance with the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. Reports must contain toxicity data, bench sheets, and reference toxicant results for test methods. In addition, the Permittee must submit toxicity test data in electronic format (CETIS export file preferred) for entry into Ecology's database.
2. The Permittee must collect 24-hour composite effluent samples for toxicity testing. The Permittee must cool the samples to 0 - 6 degrees Celsius during collection and send them to the lab immediately upon completion. The lab must begin the toxicity testing as soon as possible but no later than 36 hours after sampling was completed.
3. The laboratory must conduct water quality measurements on all samples and test solutions for toxicity testing, as specified in the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*.

4. All toxicity tests must meet quality assurance criteria and test conditions specified in the most recent versions of the EPA methods listed in Subsection C and the Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If Ecology determines any test results to be invalid or anomalous, the Permittee must repeat the testing with freshly collected effluent.
5. The laboratory must use control water and dilution water meeting the requirements of the EPA methods listed in Section A or pristine natural water of sufficient quality for good control performance.
6. The Permittee must conduct whole effluent toxicity tests on an unmodified sample of final effluent.
7. The Permittee may choose to conduct a full dilution series test during compliance testing in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the acute critical effluent concentration (ACEC). The ACEC equals 1.1% effluent.
8. All whole effluent toxicity tests, effluent screening tests, and rapid screening tests that involve hypothesis testing must comply with the acute statistical power standard of 29% as defined in WAC 173-205-020. If the test does not meet the power standard, the Permittee must repeat the test on a fresh sample with an increased number of replicates to increase the power.

S8. CHRONIC TOXICITY

A. Effluent Characterization

The Permittee must:

1. Conduct chronic toxicity testing on the final effluent twice; once in **September 2021** and once in **September 2023**. If no discharge occurs during the required month, the Permittee must notify Ecology by the end of the month and conduct sampling on the next representative discharge that occurs in the following month.
2. Submit a written report to Ecology no later than **December 31, 2021**, and **December 31, 2023**, respectively. Further instructions on testing conditions and test report content are in Section F below.
3. Conduct chronic toxicity testing during effluent characterization on a series of at least five concentrations of effluent and a control. This series of dilutions must include the acute critical effluent concentration (ACEC). The ACEC equals 3.2% effluent. The series of dilutions should also contain the CCEC of 0.9% effluent.
4. Conduct the following two chronic toxicity tests on each sample:

Saltwater Chronic Test	Species	Method
Topsmelt survival and growth	Atherinops affinis	EPA/600/R-95/136

Saltwater Chronic Test	Species	Method
Mysid shrimp survival and growth	<i>Americamysis bahia</i> (formerly <i>Mysidopsis bahia</i>)	EPA-821-R-02-014

5. The effluent limit for chronic toxicity listed in Section B below applies if any effluent characterization shows a significant difference between the control and the ACEC at the 0.05 level of significance using hypothesis testing (Appendix H, EPA/600/4-89/001).

- If the limit applies, then the Permittee must immediately follow the instructions in Sections B, C, D, E, and F.

B. Effluent Limit for Chronic Toxicity

The effluent limit for chronic toxicity is:

No toxicity detected in a test concentration representing the chronic critical effluent concentration (CCEC).

The CCEC means the maximum concentration of effluent during critical conditions at the boundary of the mixing zone, defined in Section S1.C of this permit. The CCEC equals 0.9% effluent.

C. Compliance with the Effluent Limit for Chronic Toxicity

Compliance with the effluent limit for chronic toxicity means the results of the testing specified in Subsection D show no statistically significant difference in response between the control and the CCEC.

If the test results show a statistically significant difference in survival between the control and the CCEC, and Ecology has not determined the test result to be anomalous under Section E, and the test is otherwise valid, the result is a violation of the effluent limit for chronic toxicity. The Permittee must immediately conduct the additional testing described in Section E.

The Permittee must determine the statistical significance by conducting a hypothesis test at the 0.05 level of significance (Appendix H, EPA/600/4-89/001). If the difference in response between the control and the CCEC is less than 20%, the Permittee must conduct the hypothesis test at the 0.01 level of significance.

Ecology will reevaluate the need for the chronic toxicity limit in future permits. Therefore, the Permittee must also conduct this same hypothesis test (Appendix H, EPA/600/4-89/001) to determine whether a statistically significant difference in response exists between the acute critical effluent concentration (ACEC) and the control.

D. Compliance Testing for Chronic Toxicity

The Permittee must:

1. Perform the chronic toxicity tests using the CCEC, the ACEC, and a control, or with a full dilution series.
2. Conduct chronic toxicity testing on the final effluent twice; once in **September 2022** and once in **September 2023** if characterization determines that the effluent limit for chronic toxicity applies. If no discharge occurs during the required month, the Permittee must notify Ecology by the end of the month and conduct sampling on the next representative discharge that occurs in the following month.
3. Submit a written report to Ecology no later than **December 31, 2022**, and **December 31, 2023**, respectively. Further instructions on testing conditions and test report content are in Section F below.
4. Perform compliance tests using the following species on a rotating basis and the most recent version of the following protocols:

Saltwater Chronic Test	Species	Method
Topsmelt survival and growth	<i>Atherinops affinis</i>	EPA/600/R-95/136
Mysid shrimp survival and growth	<i>Americamysis bahia</i> (formerly <i>Mysidopsis bahia</i>)	EPA-821-R-02-014

E. Response to Noncompliance with the Effluent Limit for Chronic Toxicity

If a toxicity test conducted under Subsection D determines a statistically significant difference in response between the CCEC and the control using the statistical test described in Subsection C, the Permittee must begin additional testing within one week from the time of receiving the test results. The Permittee must:

1. Conduct additional testing each month for three consecutive months using the same test and species as the failed compliance test.
2. Use a series of at least five effluent concentrations and a control to determine appropriate point estimates. One of these effluent concentrations must equal the CCEC. The results of the test at the CCEC will determine compliance with the effluent limit for chronic toxicity as described in Subsection B.
3. Return to the original monitoring frequency in Subsection D after completion of the additional compliance monitoring.

Anomalous test results: If a toxicity test conducted under Subsection D indicates noncompliance with the chronic toxicity limit and the Permittee believes that the test result is anomalous, the Permittee may notify Ecology that the compliance test result may be anomalous. The Permittee may take one additional sample for toxicity testing and wait for notification from Ecology before completing the additional testing. The Permittee must submit the notification with the report of the compliance test result and identify the reason for considering the compliance test result to be anomalous.

If Ecology determines that the test result was not anomalous, the Permittee must complete all of the additional monitoring required in this section. Or,

If the one additional sample fails to comply with the effluent limit for chronic toxicity, then the Permittee must complete all of the additional monitoring required in this section. Or,

If Ecology determines that the test result was anomalous, the one additional test result will replace the anomalous test result for the purpose of determining compliance with the chronic toxicity limit.

If all of the additional testing required in S9.E.1 complies with the permit limit, the Permittee must submit a report to Ecology on possible causes and preventive measures for the transient toxicity event, which triggered the additional compliance monitoring. This report must include a search of all pertinent and recent facility records, including:

- Operating records
- Monitoring results
- Inspection records
- Spill reports
- Weather records
- Production records
- Raw material purchases
- Pretreatment records, etc.

If the additional testing required by this section shows another violation of the chronic toxicity limit, the Permittee must submit a Toxicity Identification/Reduction Evaluation (TI/RE) plan to Ecology within 60 days after the sample date [WAC 173-205-100(2)].

F. Sampling and Reporting Requirements

1. The Permittee must submit all reports for toxicity testing in accordance with the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. Reports must contain toxicity data, bench sheets, and reference toxicant results for test methods. In addition, the Permittee must submit toxicity test data in electronic format (CETIS export file preferred) for entry into Ecology's database.
2. The Permittee must collect 24-hour composite effluent samples for toxicity testing. The Permittee must cool the samples to 0 - 6 degrees Celsius during collection and send them to the lab immediately upon completion. The lab must begin the toxicity testing as soon as possible but no later than 36 hours after sampling was completed.
3. The laboratory must conduct water quality measurements on all samples and test solutions for toxicity testing, as specified in the most recent version of Ecology

Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*.

4. All toxicity tests must meet quality assurance criteria and test conditions specified in the most recent versions of the EPA methods listed in Section C. and the Ecology Publication no. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If Ecology determines any test results to be invalid or anomalous, the Permittee must repeat the testing with freshly collected effluent.
5. The laboratory must use control water and dilution water meeting the requirements of EPA methods listed in Subsection C. or pristine natural water of sufficient quality for good control performance.
6. The Permittee must conduct whole effluent toxicity tests on an unmodified sample of final effluent.
7. The Permittee may choose to conduct a full dilution series test during compliance testing in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the CCEC and the ACEC. The CCEC and the ACEC may either substitute for the effluent concentrations that are closest to them in the dilution series or be extra effluent concentrations. The CCEC equals 0.9% effluent. The ACEC equals 3.2% effluent.
8. All whole effluent toxicity tests that involve hypothesis testing must comply with the chronic statistical power standard of 39% as defined in WAC 173-205-020. If the test does not meet the power standard, the Permittee must repeat the test on a fresh sample with an increased number of replicates to increase the power.

S9. SOURCE CONTROL STUDY FOR COD, TOTAL PCBS, PCB AROCHLOR 1242 AND BIS (2-ETHYLHEXL) PHTHALATE (BEHP)

The Permittee must conduct a Source Control Study to determine sources of COD, Total PCBs, PCB Arochlor 1242, and Bis (2-ethylhexyl) phthalate (BEHP) within the facility's operations. The Study must include two parts: 1) source identification, and 2) source control.

The Source identification portion of the Study must provide a thorough review and identification of pollutant sources which include: 1) conducting literature review to identify products, on-site recycled materials, liquids, storage, oils, lubricants, automotive shredder residue, and any other potential sources which may contain these contaminants; 2) operational activities where these sources are released onto the site or get tracked, or wind-blown off-site; and 3) collecting samples and conducting laboratory analysis to identify and confirm areas on-site, where the pollutants are coming from.

PCB samples must be tested using EPA Method 1668C. BEHP samples must be tested using EPA Method 606 (2 ug/L MDL).

The second part of the Study, Source Control, must provide a comprehensive evaluation of methods to reduce the contributions of these pollutants to the environment. These methods shall include, but is not limited to: providing additional areas of coverage from stormwater exposure; isolating areas to separate it from stormwater, wind, or tire tracking; changing operations to use different

materials, oils, lubricants, etc.; adopting new operational procedures to prevent these contaminants from entering the site; and any other method for controlling the release of these pollutants to the environment.

The first part of the Study must be submitted to Ecology postmarked **no later than November 30, 2019**. The second part of the Study must be submitted to Ecology postmarked **no later than May 31, 2020**. The Permittee must submit one paper copy as well as uploading a pdf copy through the WQWebPortal.

This Source Control Study is a living document and must be re-evaluated and revised for Total PCBs, and PCB Arochlor 1242 whenever the Total PCB effluent limitation is exceeded. BEHP data will be closely monitored and source control should be re-assessed if concentrations do not meet water quality standards. COD should be re-evaluated when concentrations exceed 600 mg/L.

S10. STORMWATER POLLUTION PREVENTION PLAN

The definitions of terms used in this section are provided in the guidance document entitled **Guidance Manual for Preparing/Updating a Stormwater Pollution Prevention Plan for Industrial Facilities** (Ecology Pub. No. 04-10-030), which is published by the Department. The SWPPP shall incorporate the applicable best management practices (BMPs) provided in the **Stormwater Management Manual for Western Washington** (Ecology Pub. No. 05-10-029 through 05-10-033) and **Vehicle Recyclers – A Guide for Implementing the Industrial Stormwater General NPDES Permit Requirements** (Ecology Pub. No. 94-146, January 2006).

The Permittee must implement all the elements of the SWPPP including operational, treatment and source control BMPs, as well as erosion and sediment control BMPs determined necessary.

A. General Requirements

1. Submission, Retention, and Availability:

The Permittee must submit a copy of the SWPPP to the Department by **September 30, 2019**, for review and comment. The SWPPP must include a discussion of pollution prevention practices and BMPs that are related to this NPDES permit which regulate treated stormwater discharges to the Hylebos Waterway. The SWPPP and all of its modifications must be signed in accordance with General Condition G1. The SWPPP shall be retained on site.

2. Modifications:

The Permittee must modify the SWPPP whenever there is a change in design, construction, **operation** or maintenance, which causes the SWPPP to be less effective in controlling the pollutants. Whenever the description of potential pollutant sources or the pollution prevention measures and controls identified in the SWPPP are inadequate, the SWPPP must be modified, as appropriate, within two months of such determination. The proposed modifications to the SWPPP must be submitted to the Department at least 30 days in advance of implementing the proposed changes in the plan unless the Department approves immediate implementation. The Permittee must provide for implementation of any modifications to the SWPPP in a timely manner.

3. The Permittee may incorporate applicable portions of plans prepared for other purposes. Plans or portions of plans incorporated into an SWPPP become enforceable requirements of this permit.
4. The Permittee must prepare the SWPPP in accordance with the guidance provided in Guidance Manual for Preparing/Updating a Stormwater Pollution Prevention Plan for Industrial Facilities. The plan must contain the following elements:
 - a. Assessment and description of existing and potential pollutant sources.
 - b. A description of the operational BMPs.
 - c. A description of selected source-control BMPs.
 - d. When necessary, a description of the erosion and sediment control BMPs.
 - e. When necessary, a description of the treatment BMPs.
 - f. An implementation schedule.

B. Implementation

The Permittee must conduct **monthly** inspections year-round.

1. The inspections performed during the wet season must be conducted during a rainfall event by personnel named in the Stormwater Pollution Prevention Plan (SWPPP) to verify that the description of potential pollutant sources required under this permit are accurate; the site map as required in the SWPPP has been updated or otherwise modified to reflect current conditions; and the controls to reduce pollutants in stormwater discharges associated with industrial activity identified in the SWPPP are being implemented and are adequate. The wet weather inspection must include observations of the presence of floating materials, suspended solids, oil and grease, discolorations, turbidity, odor, etc. in the stormwater discharge(s).
2. Personnel named in the SWPPP must also conduct inspections during the dry season. The dry season inspection must determine the presence of unpermitted non-stormwater discharges such as domestic wastewater, noncontact cooling water, or process wastewater (including leachate) to the stormwater drainage system. If an unpermitted, non-stormwater discharge is discovered, the Permittee must immediately notify the Department.

C. Plan Evaluation

The Permittee must evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate and properly implemented in accordance with the terms of the permit or whether additional controls are needed. A record must be maintained summarizing the results of inspections and include a certification, in accordance with General Condition G1, that the facility is in compliance with the plan and in compliance with this permit. The record shall identify any incidents of noncompliance.

S11. NEARSHORE LOADING AND UNLOADING AREA EVALUATION AND MAINTENANCE

The Permittee must **inspect annually** all nearshore barge loading and unloading areas and remove any metal debris found on the bottom and along the banks of the Hylebos Waterway. A report must be submitted to Ecology detailing the findings of the inspection (pre-cleanup conditions and post-cleanup conditions), and methods and best management practices used during the cleanup process. Photographic documentation must be included with the report. The report must provide an estimate of amount of metal material recovered. The first submittal must be postmarked **no later than December 31, 2019**. The Permittee must submit one paper copy and an electronic copy (as a pdf document via WQWebPortal).

S12. SEDIMENT MONITORING

A. Sediment Sampling and Analysis Plan

The Permittee must submit to Ecology for review and approval a sediment sampling and analysis plan for sediment monitoring by **August 31, 2021**. The purpose of the plan is to recharacterize sediment (the nature and extent of chemical contamination and biological toxicity) quality in the vicinity of the Permittee's discharge locations. Pollutants of interest include total PCBs, PCB Arochlor 1242, and Bis (2-ethylhexyl) phthalate (BEHP) as it relates to recontaminating the Hylebos Waterway. The Permittee must also assess metals and other normal characterization parameters. Furthermore, the Permittee must collect data that would be consistent with previous Post-Cleanup monitoring efforts. The Permittee must follow the guidance provided in the *Sediment Cleanup Users Manual II, Appendix A: Sampling Guidance for NPDES Permits under the Sediment Management Standards* (Ecology, 2015).

B. Sediment Data Report

Following Ecology approval of the sediment sampling and analysis plan, the Permittee must collect and analyze sediments in accordance with the plan. The Permittee must submit to Ecology a sediment data report containing the results of the sediment sampling and analysis no later than **August 31, 2023**. The sediment data report must conform to the approved sediment sampling and analysis plan. The report must document when the data was successfully loaded into EIM as required below.

In addition to a sediment data report, submit the sediment chemical and biological data to Ecology's EIM database (<https://ecology.wa.gov/Research-Data/Data-resources/Environmental-Information-Management-database>). Data must be submitted to EIM according to the instructions on the EIM website. The data submittal portion of the EIM website (<https://ecology.wa.gov/Research-Data/Data-resources/Environmental-Information-Management-database/EIM-submit-data>) provides information and help on formats and requirements for submitting tabular data.

In addition to the EIM data submittal, Ecology's MyEIM tools (<http://www.ecy.wa.gov/eim/MyEIM.htm>) must be used to confirm that the submitted data was accurately entered into EIM. Any differences between the MyEIM analytical results and sediment data report must be identified and explained.

S13. OUTFALL EVALUATION

The Permittee must inspect the submerged portion of the outfall line and diffuser to document its integrity and continued function. If conditions allow for a photographic verification, the Permittee must include such verification in the report. **By August 31, 2023**, the Permittee must submit the inspection report to Ecology through the Water Quality Web Permitting Portal – Permit Submittals application. The Permittee must submit hard-copies of any video files to Ecology as required by Permit Condition S3.B. The Portal does not support submittal of video files.

The inspector must at minimum:

- Assess the physical condition of the outfall pipe, diffuser, and associated couplings.
- Determine the extent of sediment accumulation in the vicinity of the diffuser.
- Ensure diffuser ports are free of obstructions and are allowing uniform flow.
- Confirm physical location (latitude/longitude) and depth (at MLLW) of the diffuser section of the outfall.
- Assess physical condition of the submarine line.
- Assess physical condition of anchors used to secure the submarine line.

S14. APPLICATION FOR PERMIT RENEWAL OR MODIFICATION FOR FACILITY CHANGES

The Permittee must submit an application for renewal of this permit **by November 30, 2022**.

The Permittee must also submit a new application or addendum at least 180 days prior to commencement of discharges, resulting from the activities listed below, which may result in permit violations. These activities include any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility.

GENERAL CONDITIONS

G1. SIGNATORY REQUIREMENTS

A. All applications submitted to Ecology must be signed and certified.

1. In the case of corporations, by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or
- The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. In the case of a partnership, by a general partner.

3. In the case of sole proprietorship, by the proprietor.

4. In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

Applications for permits for domestic wastewater facilities that are either owned or operated by, or under contract to, a public entity shall be submitted by the public entity.

B. All reports required by this permit and other information requested by Ecology must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to Ecology.
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

C. Changes to authorization. If an authorization under paragraph G1.B, above, is no longer accurate because a different individual or position has responsibility for the overall

operation of the facility, a new authorization satisfying the requirements of paragraph G1.B, above, must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

- D. Certification. Any person signing a document under this section must make the following certification:

“I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

G2. RIGHT OF INSPECTION AND ENTRY

The Permittee must allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

- A. To enter upon the premises where a discharge is located or where any records must be kept under the terms and conditions of this permit.
- B. To have access to and copy, at reasonable times and at reasonable cost, any records required to be kept under the terms and conditions of this permit.
- C. To inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.
- D. To sample or monitor, at reasonable times, any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G3. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated either at the request of any interested person (including the permittee) or upon Ecology’s initiative. However, the permit may only be modified, revoked and reissued, or terminated for the reasons specified in 40 CFR 122.62, 122.64 or WAC 173-220-150 according to the procedures of 40 CFR 124.5.

- A. The following are causes for terminating this permit during its term, or for denying a permit renewal application:
 - 1. Violation of any permit term or condition.
 - 2. Obtaining a permit by misrepresentation or failure to disclose all relevant facts.
 - 3. A material change in quantity or type of waste disposal.

4. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations and can only be regulated to acceptable levels by permit modification or termination.
 5. A change in any condition that requires either a temporary or permanent reduction, or elimination of any discharge or sludge use or disposal practice controlled by the permit.
 6. Nonpayment of fees assessed pursuant to RCW 90.48.465.
 7. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.
- B. The following are causes for modification but not revocation and reissuance except when the Permittee requests or agrees:
1. A material change in the condition of the waters of the state.
 2. New information not available at the time of permit issuance that would have justified the application of different permit conditions.
 3. Material and substantial alterations or additions to the permitted facility or activities which occurred after this permit issuance.
 4. Promulgation of new or amended standards or regulations having a direct bearing upon permit conditions, or requiring permit revision.
 5. The Permittee has requested a modification based on other rationale meeting the criteria of 40 CFR Part 122.62.
 6. Ecology has determined that good cause exists for modification of a compliance schedule, and the modification will not violate statutory deadlines.
 7. Incorporation of an approved local pretreatment program into a municipality's permit.
- C. The following are causes for modification or alternatively revocation and reissuance:
1. When cause exists for termination for reasons listed in 1.a through 1.g of this section, and Ecology determines that modification or revocation and reissuance is appropriate.
 2. When Ecology has received notification of a proposed transfer of the permit. A permit may also be modified to reflect a transfer after the effective date of an automatic transfer (General Condition G7) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new Permittee.

G4. REPORTING PLANNED CHANGES

The Permittee must, as soon as possible, but no later than 180 days prior to the proposed changes, give notice to Ecology of planned physical alterations or additions to the permitted facility, production increases, or process modification which will result in:

- A. The permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b).
- B. A significant change in the nature or an increase in quantity of pollutants discharged.
- C. A significant change in the Permittee's sludge use or disposal practices. Following such notice, and the submittal of a new application or supplement to the existing application, along with required engineering plans and reports, this permit may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G5. PLAN REVIEW REQUIRED

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications must be submitted to Ecology for approval in accordance with chapter 173-240 WAC. Engineering reports, plans, and specifications must be submitted at least 180 days prior to the planned start of construction unless a shorter time is approved by Ecology. Facilities must be constructed and operated in accordance with the approved plans.

G6. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit excuses the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G7. TRANSFER OF THIS PERMIT

In the event of any change in control or ownership of facilities from which the authorized discharge emanate, the Permittee must notify the succeeding owner or controller of the existence of this permit by letter, a copy of which must be forwarded to Ecology.

A. Transfers by Modification

Except as provided in paragraph (B) below, this permit may be transferred by the Permittee to a new owner or operator only if this permit has been modified or revoked and reissued under 40 CFR 122.62(b)(2), or a minor modification made under 40 CFR 122.63(d), to identify the new Permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

B. Automatic Transfers

This permit may be automatically transferred to a new Permittee if:

1. The Permittee notifies Ecology at least 30 days in advance of the proposed transfer date.
2. The notice includes a written agreement between the existing and new Permittees containing a specific date transfer of permit responsibility, coverage, and liability between them.
3. Ecology does not notify the existing Permittee and the proposed new Permittee of its intent to modify or revoke and reissue this permit. A modification under this

subparagraph may also be minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement.

G8. REDUCED PRODUCTION FOR COMPLIANCE

The Permittee, in order to maintain compliance with its permit, must control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

G9. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

G10. DUTY TO PROVIDE INFORMATION

The Permittee must submit to Ecology, within a reasonable time, all information which Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee must also submit to Ecology upon request, copies of records required to be kept by this permit.

G11. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G12. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G13. PAYMENT OF FEES

The Permittee must submit payment of fees associated with this permit as assessed by Ecology.

G14. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit is deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to \$10,000 and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit may incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to \$10,000 for every such violation. Each and every such violation is a separate and distinct offense, and in case of a continuing violation, every day's continuance is deemed to be a separate and distinct violation.

G15. UPSET

Definition – “Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limits if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- A. An upset occurred and that the Permittee can identify the cause(s) of the upset.
- B. The permitted facility was being properly operated at the time of the upset.
- C. The Permittee submitted notice of the upset as required in Special Condition S3.F.
- D. The Permittee complied with any remedial measures required under S3.F of this permit.

In any enforcement action the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G16. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G17. DUTY TO COMPLY

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G18. TOXIC POLLUTANTS

The Permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G19. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this condition, punishment shall be a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or by both.

G20. REPORTING REQUIREMENTS APPLICABLE TO EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURAL DISCHARGERS

The Permittee belonging to the categories of existing manufacturing, commercial, mining, or silviculture must notify Ecology as soon as they know or have reason to believe:

- A. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following “notification levels:”
 - 1. One hundred micrograms per liter (100 µg/L).
 - 2. Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony.
 - 3. Five times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7).
 - 4. The level established by the Director in accordance with 40 CFR 122.44(f).
- B. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following “notification levels:”
 - 1. Five hundred micrograms per liter (500µg/L).
 - 2. One milligram per liter (1 mg/L) for antimony.
 - 3. Ten times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7).
 - 4. The level established by the Director in accordance with 40 CFR 122.44(f).

G21. COMPLIANCE SCHEDULES

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date.

APPENDIX A

LIST OF POLLUTANTS WITH ANALYTICAL METHODS, DETECTION LIMITS AND QUANTITATION LEVELS

The Permittee must use the specified analytical methods, detection limits (DLs) and quantitation levels (QLs) in the following table for permit and application required monitoring unless:

- Another permit condition specifies other methods, detection levels, or quantitation levels.
- The method used produces measurable results in the sample and EPA has listed it as an EPA-approved method in 40 CFR Part 136.

If the Permittee uses an alternative method, not specified in the permit and as allowed above, it must report the test method, DL, and QL on the discharge monitoring report or in the required report.

If the Permittee is unable to obtain the required DL and QL in its effluent due to matrix effects, the Permittee must submit a matrix-specific detection limit (MDL) and a quantitation limit (QL) to Ecology with appropriate laboratory documentation.

When the permit requires the Permittee to measure the base neutral compounds in the list of priority pollutants, it must measure all of the base neutral pollutants listed in the table below. The list includes EPA required base neutral priority pollutants and several additional polynuclear aromatic hydrocarbons (PAHs). The Water Quality Program added several PAHs to the list of base neutrals below from Ecology's Persistent Bioaccumulative Toxics (PBT) List. It only added those PBT parameters of interest to Appendix A that did not increase the overall cost of analysis unreasonably.

Ecology added this appendix to the permit in order to reduce the number of analytical "non-detects" in permit-required monitoring and to measure effluent concentrations near or below criteria values where possible at a reasonable cost.

The lists below include conventional pollutants (as defined in CWA section 502(6) and 40 CFR Part 122.), toxic or priority pollutants as defined in CWA section 307(a)(1) and listed in 40 CFR Part 122 Appendix D, 40 CFR Part 401.15 and 40 CFR Part 423 Appendix A), and nonconventionals. 40 CFR Part 122 Appendix D (Table V) also identifies toxic pollutants and hazardous substances which are required to be reported by dischargers if expected to be present. This permit appendix A list does not include those parameters.

CONVENTIONAL POLLUTANTS

Pollutant	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
Biochemical Oxygen Demand		SM5210-B		2 mg/L
Biochemical Oxygen Demand, Soluble		SM5210-B ³		2 mg/L
Fecal Coliform		SM 9221E,9222	N/A	Specified in method - sample aliquot dependent
Oil and Grease (HEM) (Hexane Extractable Material)		1664 A or B	1,400	5,000
pH		SM4500-H ⁺ B	N/A	N/A
Total Suspended Solids		SM2540-D		5 mg/L

NONCONVENTIONAL POLLUTANTS

Pollutant	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
Alkalinity, Total		SM2320-B		5 mg/L as CaCO ₃
Aluminum, Total	7429-90-5	200.8	2.0	10
Ammonia, Total (as N)		SM4500-NH ₃ -B and C/D/E/G/H		20

NONCONVENTIONAL POLLUTANTS

Pollutant	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
Barium Total	7440-39-3	200.8	0.5	2.0
BTEX (benzene +toluene + ethylbenzene + m,o,p xylenes)		EPA SW 846 8021/8260	1	2
Boron, Total	7440-42-8	200.8	2.0	10.0
Chemical Oxygen Demand		SM5220-D		10 mg/L
Chloride		SM4500-Cl B/C/D/E and SM4110 B		Sample and limit dependent
Chlorine, Total Residual		SM4500 Cl G		50.0
Cobalt, Total	7440-48-4	200.8	0.05	0.25
Color		SM2120 B/C/E		10 color units
Dissolved oxygen		SM4500-OC/OG		0.2 mg/L
Flow		Calibrated device		
Fluoride	16984-48-8	SM4500-F E	25	100
Hardness, Total		SM2340B		200 as CaCO ₃
Iron, Total	7439-89-6	200.7	12.5	50
Magnesium, Total	7439-95-4	200.7	10	50

NONCONVENTIONAL POLLUTANTS

Pollutant	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
Manganese, Total	7439-96-5	200.8	0.1	0.5
Molybdenum, Total	7439-98-7	200.8	0.1	0.5
Nitrate + Nitrite Nitrogen (as N)		SM4500-NO3- E/F/H		100
Nitrogen, Total Kjeldahl (as N)		SM4500-N _{org} B/C and SM4500NH ₃ - B/C/D/EF/G/H		300
NWTPH Dx ⁴		Ecology NWTPH Dx	250	250
NWTPH Gx ⁵		Ecology NWTPH Gx	250	250
Phosphorus, Total (as P)		SM 4500 PB followed by SM4500-PE/PF	3	10
Salinity		SM2520-B		3 practical salinity units or scale (PSU or PSS)
Settleable Solids		SM2540 -F		Sample and limit dependent
Soluble Reactive Phosphorus (as P)		SM4500-P E/F/G	3	10
Sulfate (as mg/L SO ₄)		SM4110-B		0.2 mg/L
Sulfide (as mg/L S)		SM4500-S ² F/D/E/G		0.2 mg/L

NONCONVENTIONAL POLLUTANTS

Pollutant	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
Sulfite (as mg/L SO ₃)		SM4500-SO3B		2 mg/L
Temperature (max. 7-day avg.)		Analog recorder or Use micro-recording devices known as thermistors		0.2° C
Tin, Total	7440-31-5	200.8	0.3	1.5
Titanium, Total	7440-32-6	200.8	0.5	2.5
Total Coliform		SM 9221B, 9222B, 9223B	N/A	Specified in method - sample aliquot dependent
Total Organic Carbon		SM5310-B/C/D		1 mg/L
Total dissolved solids		SM2540 C		20 mg/L

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
METALS, CYANIDE & TOTAL PHENOLS					
Antimony, Total	114	7440-36-0	200.8	0.3	1.0
Arsenic, Total	115	7440-38-2	200.8	0.1	0.5
Beryllium, Total	117	7440-41-7	200.8	0.1	0.5
Cadmium, Total	118	7440-43-9	200.8	0.05	0.25
Chromium (hex) dissolved	119	18540-29-9	SM3500-Cr C	0.3	1.2
Chromium, Total	119	7440-47-3	200.8	0.2	1.0
Copper, Total	120	7440-50-8	200.8	0.4	2.0
Lead, Total	122	7439-92-1	200.8	0.1	0.5
Mercury, Total	123	7439-97-6	1631E	0.0002	0.0005
Nickel, Total	124	7440-02-0	200.8	0.1	0.5
Selenium, Total	125	7782-49-2	200.8	1.0	1.0
Silver, Total	126	7440-22-4	200.8	0.04	0.2
Thallium, Total	127	7440-28-0	200.8	0.09	0.36

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
Zinc, Total	128	7440-66-6	200.8	0.5	2.5
Cyanide, Total	121	57-12-5	335.4	5	10
Cyanide, Weak Acid Dissociable	121		SM4500-CN I	5	10
Cyanide, Free Amenable to Chlorination (Available Cyanide)	121		SM4500-CN G	5	10
Phenols, Total	65		EPA 420.1		50
ACID COMPOUNDS					
2-Chlorophenol	24	95-57-8	625.1	3.3	9.9
2,4-Dichlorophenol	31	120-83-2	625.1	2.7	8.1
2,4-Dimethylphenol	34	105-67-9	625.1	2.7	8.1
4,6-dinitro-o-cresol (2-methyl-4,6-dinitrophenol)	60	534-52-1	625.1/1625B	24	72
2,4 dinitrophenol	59	51-28-5	625.1	42	126
2-Nitrophenol	57	88-75-5	625.1	3.6	10.8
4-Nitrophenol	58	100-02-7	625.1	2.4	7.2

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
Parachlorometa cresol (4-chloro-3-methylphenol)	22	59-50-7	625.1	3.0	9.0
Pentachlorophenol	64	87-86-5	625.1	3.6	10.8
Phenol	65	108-95-2	625.1	1.5	4.5
2,4,6-Trichlorophenol	21	88-06-2	625.1	2.7	8.1
VOLATILE COMPOUNDS					
Acrolein	2	107-02-8	624	5	10
Acrylonitrile	3	107-13-1	624	1.0	2.0
Benzene	4	71-43-2	624.1	4.4	13.2
Bromoform	47	75-25-2	624.1	4.7	14.1
Carbon tetrachloride	6	56-23-5	624.1/601 or SM6230B	2.8	8.4
Chlorobenzene	7	108-90-7	624.1	6.0	18.0
Chloroethane	16	75-00-3	624/601	1.0	2.0
2-Chloroethylvinyl Ether	19	110-75-8	624	1.0	2.0
Chloroform	23	67-66-3	624.1 or SM6210B	1.6	4.8

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
Dibromochloromethane (chlordibromomethane)	51	124-48-1	624.1	3.1	9.3
1,2-Dichlorobenzene	25	95-50-1	624	1.9	7.6
1,3-Dichlorobenzene	26	541-73-1	624	1.9	7.6
1,4-Dichlorobenzene	27	106-46-7	624	4.4	17.6
Dichlorobromomethane	48	75-27-4	624.1	2.2	6.6
1,1-Dichloroethane	13	75-34-3	624.1	4.7	14.1
1,2-Dichloroethane	10	107-06-2	624.1	2.8	8.4
1,1-Dichloroethylene	29	75-35-4	624.1	2.8	8.4
1,2-Dichloropropane	32	78-87-5	624.1	6.0	18.0
1,3-dichloropropene (mixed isomers) (1,2-dichloropropylene) ⁶	33	542-75-6	624.1	5.0	15.0
Ethylbenzene	38	100-41-4	624.1	7.2	21.6
Methyl bromide (Bromomethane)	46	74-83-9	624/601	5.0	10.0
Methyl chloride (Chloromethane)	45	74-87-3	624	1.0	2.0

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
Methylene chloride	44	75-09-2	624.1	2.8	8.4
1,1,2,2-Tetrachloroethane	15	79-34-5	624.1	6.9	20.7
Tetrachloroethylene	85	127-18-4	624.1	4.1	12.3
Toluene	86	108-88-3	624.1	6.0	18.0
1,2-Trans-Dichloroethylene (Ethylene dichloride)	30	156-60-5	624.1	1.6	4.8
1,1,1-Trichloroethane	11	71-55-6	624.1	3.8	11.4
1,1,2-Trichloroethane	14	79-00-5	624.1	5.0	15.0
Trichloroethylene	87	79-01-6	624.1	1.9	5.7
Vinyl chloride	88	75-01-4	624/SM6200B	1.0	2.0
BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)					
Acenaphthene	1	83-32-9	625.1	1.9	5.7
Acenaphthylene	77	208-96-8	625.1	3.5	10.5
Anthracene	78	120-12-7	625.1	1.9	5.7
Benzidine	5	92-87-5	625.1	44	132

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
Benzyl butyl phthalate	67	85-68-7	625.1	2.5	7.5
Benzo(a)anthracene	72	56-55-3	625.1	7.8	23.4
Benzo(b)fluoranthene (3,4-benzofluoranthene) ⁷	74	205-99-2	610/625.1	4.8	14.4
Benzo(j)fluoranthene ⁷		205-82-3	625	0.5	1.0
Benzo(k)fluoranthene (11,12-benzofluoranthene) ⁷	75	207-08-9	610/625.1	2.5	7.5
Benzo(r,s,t)pentaphene		189-55-9	625	1.3	5.0
Benzo(a)pyrene	73	50-32-8	610/625.1	2.5	7.5
Benzo(ghi)Perylene	79	191-24-2	610/625.1	4.1	12.3
Bis(2-chloroethoxy)methane	43	111-91-1	625.1	5.3	15.9
Bis(2-chloroethyl)ether	18	111-44-4	611/625.1	5.7	17.1
Bis(2-chloroisopropyl)ether	42	39638-32-9	625	0.5	1.0
Bis(2-ethylhexyl)phthalate	66	117-81-7	625.1	2.5	7.5
4-Bromophenyl phenyl ether	41	101-55-3	625.1	1.9	5.7

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
2-Chloronaphthalene	20	91-58-7	625.1	1.9	5.7
4-Chlorophenyl phenyl ether	40	7005-72-3	625.1	4.2	12.6
Chrysene	76	218-01-9	610/625.1	2.5	7.5
Dibenzo (a,h)acridine		226-36-8	610M/625M	2.5	10.0
Dibenzo (a,j)acridine		224-42-0	610M/625M	2.5	10.0
Dibenzo(a-h)anthracene (1,2,5,6-dibenzanthracene)	82	53-70-3	625.1	2.5	7.5
Dibenzo(a,e)pyrene		192-65-4	610M/625M	2.5	10.0
Dibenzo(a,h)pyrene		189-64-0	625M	2.5	10.0
3,3-Dichlorobenzidine	28	91-94-1	605/625.1	16.5	49.5
Diethyl phthalate	70	84-66-2	625.1	1.9	5.7
Dimethyl phthalate	71	131-11-3	625.1	1.6	4.8
Di-n-butyl phthalate	68	84-74-2	625.1	2.5	7.5
2,4-dinitrotoluene	35	121-14-2	609/625.1	5.7	17.1
2,6-dinitrotoluene	36	606-20-2	609/625.1	1.9	5.7

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
Di-n-octyl phthalate	69	117-84-0	625.1	2.5	7.5
1,2-Diphenylhydrazine (<i>as Azobenzene</i>)	37	122-66-7	1625B	5.0	20
Fluoranthene	39	206-44-0	625.1	2.2	6.6
Fluorene	80	86-73-7	625.1	1.9	5.7
Hexachlorobenzene	9	118-74-1	612/625.1	1.9	5.7
Hexachlorobutadiene	52	87-68-3	625.1	0.9	2.7
Hexachlorocyclopentadiene	53	77-47-4	1625B/625	2.0	4.0
Hexachloroethane	12	67-72-1	625.1	1.6	4.8
Indeno(1,2,3- <i>cd</i>)Pyrene	83	193-39-5	610/625.1	3.7	11.1
Isophorone	54	78-59-1	625.1	2.2	6.6
3-Methyl cholanthrene		56-49-5	625	2.0	8.0
Naphthalene	55	91-20-3	625.1	1.6	4.8
Nitrobenzene	56	98-95-3	625.1	1.9	5.7
N-Nitrosodimethylamine	61	62-75-9	607/625	2.0	4.0

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
N-Nitrosodi-n-propylamine	63	621-64-7	607/625	0.5	1.0
N-Nitrosodiphenylamine	62	86-30-6	625	1.0	2.0
Perylene		198-55-0	625	1.9	7.6
Phenanthrene	81	85-01-8	625.1	5.4	16.2
Pyrene	84	129-00-0	625.1	1.9	5.7
1,2,4-Trichlorobenzene	8	120-82-1	625.1	1.9	5.7

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
DIOXIN					
2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (2,3,7,8 TCDD)	129	1746-01-6	1613B	1.3 pg/L	5 pg/L
PESTICIDES/PCBs					
Aldrin	89	309-00-2	608.3	4.0 ng/L	12 ng/L

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
alpha-BHC	102	319-84-6	608.3	3.0 ng/L	9.0 ng/L
beta-BHC	103	319-85-7	608.3	6.0 ng/L	18 ng/L
gamma-BHC (Lindane)	104	58-89-9	608.3	4.0 ng/L	12 ng/L
delta-BHC	105	319-86-8	608.3	9.0 ng/L	27 ng/L
Chlordane ⁸	91	57-74-9	608.3	14 ng/L	42 ng/L
4,4'-DDT	92	50-29-3	608.3	12 ng/L	36 ng/L
4,4'-DDE	93	72-55-9	608.3	4.0 ng/L	12 ng/L
4,4' DDD	94	72-54-8	608.3	11ng/L	33 ng/L
Dieldrin	90	60-57-1	608.3	2.0 ng/L	6.0 ng/L
alpha-Endosulfan	95	959-98-8	608.3	14 ng/L	42 ng/L
beta-Endosulfan	96	33213-65-9	608.3	4.0 ng/L	12 ng/L
Endosulfan Sulfate	97	1031-07-8	608.3	66 ng/L	198 ng/L
Endrin	98	72-20-8	608.3	6.0 ng/L	18 ng/L
Endrin Aldehyde	99	7421-93-4	608.3	23 ng/L	70 ng/L

PRIORITY POLLUTANTS

Pollutant	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ <i>µg/L unless specified</i>	Quantitation Level (QL)² <i>µg/L unless specified</i>
Heptachlor	100	76-44-8	608.3	3.0 ng/L	9.0 ng/L
Heptachlor Epoxide	101	1024-57-3	608.3	83 ng/L	249 ng/L
PCB-1242 ⁹	106	53469-21-9	608.3	0.065	0.195
PCB-1254	107	11097-69-1	608.3	0.065	0.195
PCB-1221	108	11104-28-2	608.3	0.065	0.195
PCB-1232	109	11141-16-5	608.3	0.065	0.195
PCB-1248	110	12672-29-6	608.3	0.065	0.195
PCB-1260	111	11096-82-5	608.3	0.065	0.195
PCB-1016 ⁹	112	12674-11-2	608.3	0.065	0.195
Toxaphene	113	8001-35-2	608.3	240 ng/L	720 ng/L

1. Detection level (DL) or detection limit means the minimum concentration of an analyte (substance) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero as determined by the procedure given in 40 CFR part 136, Appendix B.
2. Quantitation Level (QL) also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1, 2, or 5) x 10ⁿ, where n is an integer. (64 FR 30417).
ALSO GIVEN AS:

The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

3. Soluble Biochemical Oxygen Demand method note: First, filter the sample through a Millipore Nylon filter (or equivalent) - pore size of 0.45-0.50 um (prep all filters by filtering 250 ml of laboratory grade deionized water through the filter and discard). Then, analyze sample as per method 5210-B.
4. NWTPH Dx - Northwest Total Petroleum Hydrocarbons Diesel Extended Range – see <https://fortress.wa.gov/ecy/publications/documents/97602.pdf>
5. NWTPH Gx - Northwest Total Petroleum Hydrocarbons Gasoline Extended Range – see <https://fortress.wa.gov/ecy/publications/documents/97602.pdf>
6. 1, 3-dichloropropylene (mixed isomers) You may report this parameter as two separate parameters: cis-1, 3-dichloropropene (10061-01-5) and trans-1, 3-dichloropropene (10061-02-6).
7. Total Benzo(a)fluoranthenes - Because Benzo(b)fluoranthene, Benzo(j)fluoranthene and Benzo(k)fluoranthene co-elute you may report these three isomers as total benzo(a)fluoranthenes.
8. Chlordane – You may report alpha-chlordane (5103-71-9) and gamma-chlordane (5103-74-2) in place of chlordane (57-74-9). If you report alpha and gamma-chlordane, the DL/PQLs that apply are 14/42 ng/L.
9. PCB 1016 & PCB 1242 – You may report these two PCB compounds as one parameter called PCB 1016/1242.

Appendix B
Monthly Visual Inspection Form

RECORD OF ANNUAL VISUAL INSPECTIONS OF STORMWATER DISCHARGES			Completed by *:	
			Title:	
			Date:	
			* Must be conducted by qualified person identified in the SWPPP.	
List observed pollutants in all discharges and carefully assess the pollutant sources action steps needed to control the pollutants. Record pollutant and sources/generating activities, BMP adequacy, site map, and other facility information presented in the SWPPP.				
Date	Location	Description (catch basin, etc.)	List of observed pollutants and descriptions of intensities of each. Include presence of floatables, oil sheen, discoloration, turbidity, odor, etc.	Recommended Action Steps
CERTIFICATION				
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information. <i>Based on my inquiry of the person or persons who manage the systems or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>				
A. Name and Title			B. Phone:	
C. Signature			D. Date Signed	

Appendix C

Non-Stormwater Discharge Inspection Form and Failure to Certify Form

Non-Stormwater Discharge (May to September) Assessment and Certification		Completed By: _____ Title: _____ Date: _____			
<p>The dry season inspection shall determine the presence of unpermitted non-stormwater discharges such as domestic wastewater, non-contact cooling water, or process wastewater (including <i>leachate</i>) to the <i>stormwater drainage system</i>. Such discharges, if illicit, must be eliminated within 30 days, or application submitted to Ecology for a NPDES Permit.</p> <p>Tests may include: visual observations of flows, odors, and other abnormal conditions; dye tests, television line surveys; and/or analysis and validation of accurate piping schematics.</p>					
Date	Discharge Location (as indicated on the site map)	Method Used to Test or Evaluate Discharge	Describe Results from Test for Presence of Non- Stormwater Discharge	Identify Potential Significant Sources	Person Who Conducted the Test
CERTIFICATION					
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information. <i>Based on my inquiry of the person or persons who manage the systems or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>					
A. Name and Title:				B. Phone:	
C. Signature:				D. Date Signed:	

Non-Stormwater Discharge Assessment and Failure To Certify Notification	Completed By: _____ Title: _____ Date: _____	
<p>If you cannot feasibly evaluate the entire stormwater drainage system, fill in the table below with the appropriate information and sign this form to certify the accuracy of the included information.</p> <p>List all outfalls or storm drains tested or evaluated, describe any potential sources of non-stormwater pollution from listed outfalls or drains, and state the reason(s) why certification is not possible. Use the key from your site map to identify each outfall.</p>		
Identify Discharge Location Not Tested/Evaluated	Description of Why Certification is Infeasible	Description of Potential Sources of Non-Stormwater Pollution

CERTIFICATION	
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information. <i>Based on my inquiry of the person or persons who manage the systems or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>	
A. Name and Title:	B. Phone:
C. Signature:	D. Date Signed:

Appendix D

Site Inspection Checklist

SITE INSPECTION CHECKLIST
GENERAL METALS OF TACOMA
Stormwater Pollution Prevention Plan

Inspector Signature _____

Date _____

MONTHLY INSPECTION ITEMS						
Inspection Items	Status		Comments	Recommended Corrective Action	Date Completed	Initials
	Acceptable	Unacceptable				
Catch Basins						
Unobstructed/operative						
Grates in good condition						
Vehicles/Equipment						
Oil leaks						
Drip pans in place						
Pavement						
Condition/repair						
Swept/free of buildup						
Evidence of spill or leakage						
Debris, refuse						
Trailer sweep-off bins						
Trash dumpsters						
Other						
Spill response kits						
Unacceptable or suspect materials						
Containers						
Kept closed						
Properly labeled						
In good condition						
No signs of leakage or spillage						
Outfall						
Floating solids						
Oil and Grease sheen						

Appendix E

Source-Specific Operational BMPs

E-1 BMPs for Loading and Unloading
Areas for Liquid or Solid Material

Integrated Pest Management

An IPM program might consist of the following steps:

Step 1: Correctly identify problem pests and understand their life cycle

Step 2: Establish tolerance thresholds for pests.

Step 3: Monitor to detect and prevent pest problems.

Step 4: Modify the maintenance program to promote healthy plants and discourage pests.

Step 5: Use cultural, physical, mechanical or biological controls first if pests exceed the tolerance thresholds.

Step 6: Evaluate and record the effectiveness of the control and modify maintenance practices to support lawn or landscape recovery and prevent recurrence.

For an elaboration of these steps, refer to [Appendix IV-F](#).

S412 BMPs for Loading and Unloading Areas for Liquid or Solid Material

Description of Pollutant Sources: Operators typically conduct loading/unloading of liquid and solid materials at industrial and commercial facilities at shipping and receiving, outside storage, fueling areas, etc. Materials transferred can include products, raw materials, intermediate products, waste materials, fuels, scrap metals, etc. Leaks and spills of fuels, oils, powders, organics, heavy metals, salts, acids, alkalis, etc. during transfer may cause stormwater contamination. Spills from hydraulic line breaks are a common problem at loading docks.

Pollutant Control Approach: Cover and contain the loading/unloading area where necessary to prevent run-on of stormwater and runoff of contaminated stormwater.

Applicable Operational BMPs:

At All Loading/ Unloading Areas:

- A significant amount of debris can accumulate at outside, uncovered loading/unloading areas. Sweep these surfaces frequently to remove loose material that could contaminate stormwater. Sweep areas temporarily covered after removal of the containers, logs, or other material covering the ground.
- Place drip pans, or other appropriate temporary containment device, at locations where leaks or spills may occur such as hose connections, hose reels and filler nozzles. Always use drip pans when making and breaking connections (see [Figure 2.2.2](#)). Check loading/ unloading equipment such as valves, pumps, flanges, and connections regularly for leaks and repair as needed.

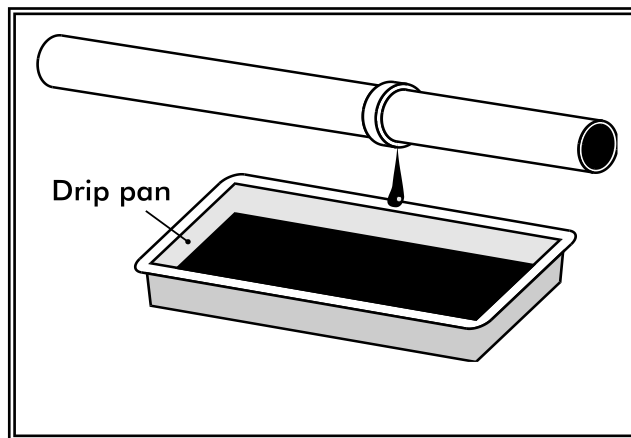


Figure 2.2.2 – Drip Pan

At Tanker Truck and Rail Transfer Areas to Above/Below-ground Storage Tanks:

- To minimize the risk of accidental spillage, prepare an "Operations Plan" that describes procedures for loading/unloading. Train the employees, especially fork lift operators, in its execution and post it or otherwise have it readily available to all employees.
- Report spills of reportable quantities to Ecology.
- Prepare and implement an Emergency Spill Cleanup Plan for the facility (See [S406 BMPs for Spills of Oil and Hazardous Substances](#)) which includes the following BMPs:
 - Ensure the cleanup of liquid/solid spills in the loading/unloading area immediately, if a significant spill occurs, and, upon completion of the loading/unloading activity, or, at the end of the working day.
 - Retain and maintain an appropriate oil spill cleanup kit on-site for rapid cleanup of material spills. (See [S406 BMPs for Spills of Oil and Hazardous Substances](#)).
 - Ensure that an employee trained in spill containment and cleanup is present during loading/unloading.

At Rail Transfer Areas to Above/below-ground Storage Tanks: Install a drip pan system as illustrated (see [Figure 2.2.3](#)) within the rails to collect spills/leaks from tank cars and hose connections, hose reels, and filler nozzles.

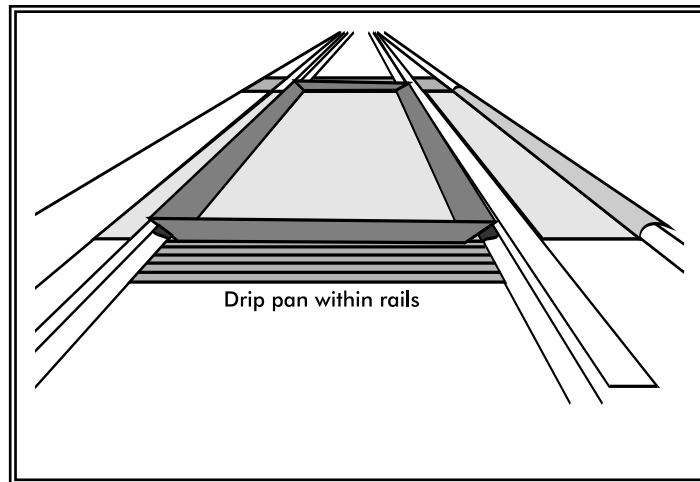


Figure 2.2.3 – Drip Pan Within Rails

Loading/Unloading from/to Marine Vessels: Facilities and procedures for the loading or unloading of petroleum products must comply with Coast Guard requirements specified in [Appendix IV-D R.5](#).

Transfer of Small Quantities from Tanks and Containers: Refer to BMPs [Storage of Liquids in Permanent Above-Ground Tanks](#), and [Storage of Liquid, Food Waste, or Dangerous Waste Containers](#), for requirements on the transfer of small quantities from tanks and containers, respectively.

Applicable Structural Source Control BMPs:

At All Loading/ Unloading Areas:

- Consistent with Uniform Fire Code requirements ([Appendix IV-D R.2](#)) and to the extent practicable, conduct unloading or loading of solids and liquids in a manufacturing building, under a roof, or lean-to, or other appropriate cover.
- Berm, dike, and/or slope the loading/unloading area to prevent run-on of stormwater and to prevent the runoff or loss of any spilled material from the area.
- Place curbs along the edge of the shoreline, or slope the edge such that the stormwater can flow to an internal storm sewer system that leads to an approved treatment BMP. Avoid draining directly to the surface water from loading areas.
- Pave and slope loading/unloading areas to prevent the pooling of water. Minimize the use of catch basins and drain lines within the interior of the paved area or place catch basins in designated “alleyways” that are not covered by material, containers, or equipment.
- Retain on-site the necessary materials for rapid cleanup of spills.

Recommended Structural Source Control BMP: For the transfer of pollutant liquids in areas that cannot contain a catastrophic spill, install an automatic shutoff system in case of unanticipated off-loading interruption (e.g. coupling break, hose rupture, overfill, etc.).

At Loading and Unloading Docks:

- Install/maintain overhangs, or door skirts that enclose the trailer end (see [Figures 2.2.4](#) and [2.2.5](#)) to prevent contact with rainwater.
- Design the loading/unloading area with berms, sloping, etc. to prevent the run-on of stormwater.

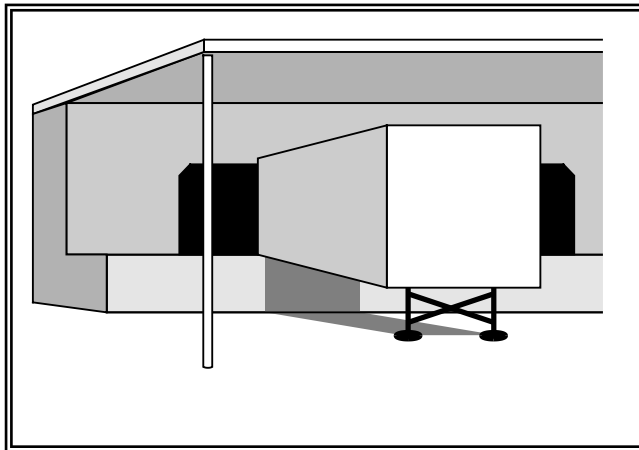


Figure 2.2.4 – Loading Dock with Door Skirt

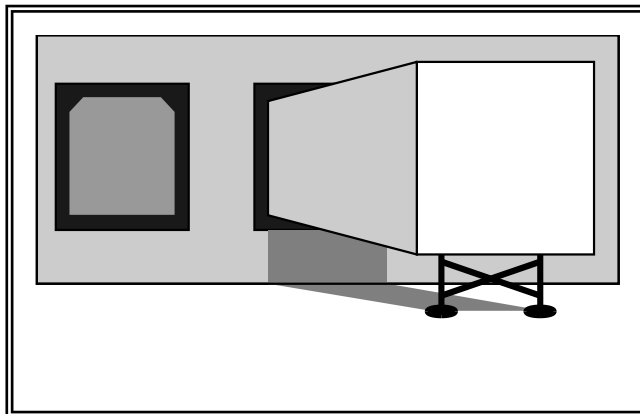


Figure 2.2.5 – Loading Dock with Overhang

At Tanker Truck Transfer Areas to Above/Below-Ground Storage Tanks:

- Pave the area on which the transfer takes place. If any transferred liquid, such as gasoline, is reactive with asphalt, pave the area with Portland cement concrete.

- Slope, berm, or dike the transfer area to a dead-end sump, spill containment sump, a spill control oil/water separator, or other spill control device. The minimum spill retention time should be 15 minutes at the greater flow rate of the highest fuel dispenser nozzle through-put rate, or the peak flow rate of the 6-month, 24-hour storm event over the surface of the containment pad, whichever is greater. The capacity of the spill containment sump should be a minimum of 50 gallons with adequate additional volume provided for grit sedimentation.

S413 BMPs for Log Sorting and Handling

Description of Pollutant Sources: Log yards are paved or unpaved areas where logs are transferred, sorted, debarked, cut, and stored to prepare them for shipment or for the production of dimensional lumber, plywood, chips, poles, or other products. Log yards are generally maintained at sawmills, shipping ports, and pulp mills. Typical pollutants include oil and grease, BOD, settleable solids, total suspended solids (including soil), high and low pH, heavy metals, pesticides, wood-based debris, and leachate

The following are pollutant sources:

- Log storage, rollout, sorting, scaling, and cutting areas
- Log and liquid loading areas
- Log sprinkling
- Debarking, bark bin and conveyor areas
- Bark, ash, sawdust and wood debris piles, and solid wastes
- Metal salvage areas
- Truck, rail, ship, stacker, and loader access areas
- Log trucks, stackers, loaders, forklifts, and other heavy equipment
- Maintenance shops and parking areas
- Cleaning areas for vehicles, parts, and equipment
- Storage and handling areas for hydraulic oils, lubricants, fuels, paints, liquid wastes, and other liquid materials
- Pesticide usage for log preservation and surface protection
- Application of herbicides for weed control
- Contaminated soil resulting from leaks or spills of fluids

Ecology's Baseline General Permit Requirements:

Industries with log yards are required to obtain coverage under the Industrial Stormwater General Permit for discharges of stormwater associated with industrial activities. The permit requires preparation and on-site retention of an Industrial Stormwater Pollution Prevention Plan

E-2 BMPs for Mobile Fueling of Vehicles and Heavy Equipment

- Isolate and segregate pollutants as feasible. Convey the segregated pollutants to a sanitary sewer, process treatment, or a dead-end sump depending on available methods and applicable permit requirements.

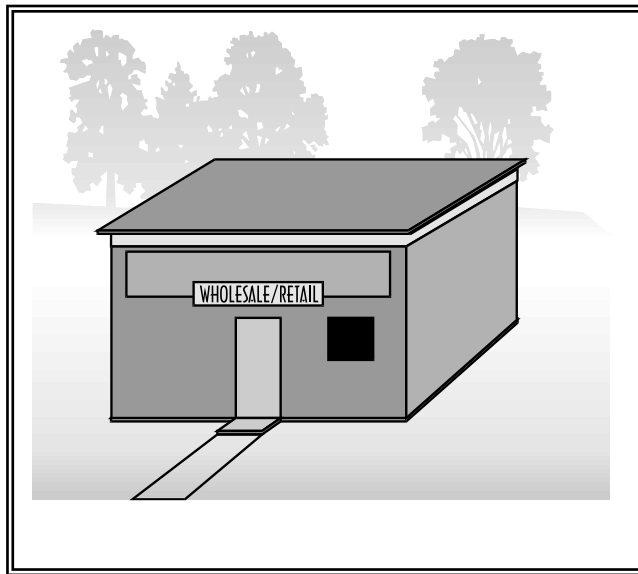


Figure 2.2.6 – Enclose the Activity

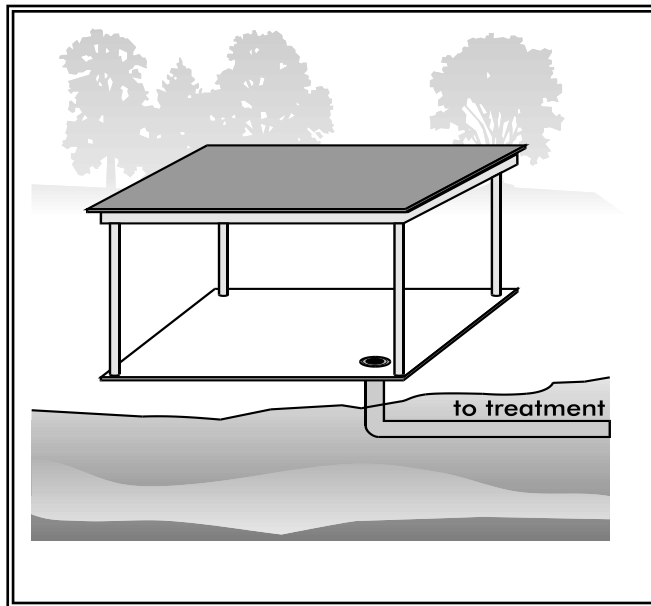


Figure 2.2.7 – Cover the Activity

S419 BMPs for Mobile Fueling of Vehicles and Heavy Equipment

Description of Pollutant Sources: Mobile fueling, also known as fleet fueling, wet fueling, or wet hosing, is the practice of filling fuel tanks of vehicles by tank trucks that are driven to the yards or sites where the vehicles to be fueled are located. Regulators categorize diesel fuel as a

Note that some local fire departments may have restrictions on mobile fueling practices.

Class II Combustible Liquid, whereas they categorize gasoline as a Flammable Liquid.

Historically organizations conducted mobile fueling for off-road vehicles operated for extended periods in remote areas. This includes construction sites, logging operations, and farms. Some organizations conduct mobile fueling of on-road vehicles commercially in the State of Washington.

Pollutant Control Approach: Operators typically need proper training of the fueling operators, and the use of spill/drip control and reliable fuel transfer equipment with backup shutoff valving.

Applicable Operational BMPs:

Organizations and individuals conducting mobile fueling operations must implement the bulleted BMPs below. The operating procedures for the driver/operator should be simple, clear, effective, and their implementation verified by the organization liable for environmental and third party damage.

- Ensure that the local fire department approves all mobile fueling operations. Comply with local and Washington State fire codes.
- In fueling locations that are in close proximity to sensitive aquifers, designated wetlands, wetland buffers, or other waters of the State, approval by local jurisdictions is necessary to ensure compliance with additional local requirements.
- Ensure compliance with all 49 CFR 178 requirements for DOT 406 cargo tanker. Documentation from a Department of Transportation (DOT) Registered Inspector provides proof of compliance.
- Ensure the presence and the constant observation/monitoring of the driver/operator at the fuel transfer location at all times during fuel transfer and ensure implementation of the following procedures at the fuel transfer locations:
 - Locate the point of fueling at least 25 feet from the nearest storm sewer or inside an impervious containment with a volumetric holding capacity equal to or greater than 110 percent of the fueling tank volume, or covering the storm sewer to ensure no inflow of spilled or leaked fuel. Covers are not required for storm sewers that convey the inflow to a spill control separator approved by the local jurisdiction and the fire department. Potential spill/leak conveyance surfaces must be impervious and in good repair.
 - Place a drip pan, or an absorbent pad under each fueling location prior to and during all dispensing operations. The pan (must be liquid tight) and the absorbent pad must have a capacity of at least 5 gallons. There is no need to report spills retained in the drip pan or the pad.

- Manage the handling and operation of fuel transfer hoses and nozzle, drip pan(s), and absorbent pads as needed to prevent spills/leaks of fuel from reaching the ground, storm sewer, and receiving waters.
- Avoid extending the fueling hoses across a traffic lane without fluorescent traffic cones, or equivalent devices, conspicuously placed to block all traffic from crossing the fuel hose.
- Remove the fill nozzle and cease filling the tank when the automatic shut-off valve engages. Do not lock automatic shutoff fueling nozzles in the open position.
- Do not “top off” the fuel receiving equipment.
- Provide the driver/operator of the fueling vehicle with:
 - Adequate flashlights or other mobile lighting to view fuel fill openings with poor accessibility. Consult with local fire department for additional lighting requirements.
 - Two-way communication with his/her home base.
- Train the driver/operator annually in spill prevention and cleanup measures and emergency procedures. Make all employees aware of the significant liability associated with fuel spills.
- The responsible manager shall properly sign and date the fueling operating procedures. . Distribute procedures to the operators, retain them in the organization files, and make them available in the event an authorized government agency requests a review.
- Immediately notify the local fire department (911) and the appropriate regional office of the Department of Ecology in the event of any spill entering surface or ground waters. Establish a “call down list” to ensure the rapid and proper notification of management and government officials should any significant amount of product be lost off-site. Keep the list in a protected but readily accessible location in the mobile fueling truck. The “call down list” should also pre-identify spill response contractors available in the area to ensure the rapid removal of significant product spillage into the environment.
- Maintain a minimum of the following spill clean-up materials in all fueling vehicles, that are readily available for use:
 - Non-water absorbents capable of absorbing at least 15 gallons of diesel fuel.
 - A storm drain plug or cover kit.
 - A non-water absorbent containment boom of a minimum 10 feet in length with a 12-gallon minimum absorbent capacity.
 - A non-spark generating shovel (a steel shovels could generate a spark and cause an explosion in the right environment around a spill).

- Two, five-gallon buckets with lids.
- Use automatic shutoff nozzles for dispensing the fuel. Replace automatic shut-off nozzles as recommended by the manufacturer.
- Maintain and replace equipment on fueling vehicles, particularly hoses and nozzles, at established intervals to prevent failures.

Applicable Structural Source Control BMPs: Include the following fuel transfer site components:

- Automatic fuel transfer shut-off nozzles.
- An adequate lighting system at the filling point.

S420 BMPs for Painting/ Finishing /Coating of Vehicles/Boats/ Buildings/ Equipment

Description of Pollutant Sources: Surface preparation and the application of paints, finishes, and/or coatings to vehicles, boats, buildings, and/or equipment outdoors can be sources of pollutants. Potential pollutants include organic compounds, oils and greases, heavy metals, and suspended solids.

Pollutant Control Approach: Cover and contain painting and sanding operations and apply good housekeeping and preventive maintenance practices to prevent the contamination of stormwater with painting over sprays and grit from sanding.

Applicable Operational BMPs:

- Train employees in the careful application of paints, finishes, and coatings to reduce misuse and over spray. Use drop cloths underneath outdoor painting, scraping, sandblasting work, and properly clean and temporarily store collected debris daily.
- Do not conduct spraying, blasting, or sanding activities over open water or where wind may blow paint into water.
- Wipe up spills with rags and other absorbent materials immediately. Do not hose down the area to a storm sewer, receiving water, or conveyance ditch.
- On marine dock areas sweep rather than hose down debris. Collect any hose water generated and convey to appropriate treatment and disposal.
- Use an effective runoff control device if dust, grit, washwater, or other pollutants may escape the work area and enter a catch basin. The containment device(s) must be in place at the beginning of the workday. Collect contaminated runoff and solids and properly dispose of such wastes before removing the containment device(s) at the end of the workday.

E-3 BMPs for Fueling
at Dedicated Station

Pollutant Control Approach: Prevent dust generation and emissions where feasible, regularly clean-up dust that can contaminate stormwater, and convey dust contaminated stormwater to proper treatment.

Applicable BMPs:

- Clean, as needed, powder material handling equipment and vehicles.
- Regularly sweep dust accumulation areas that can contaminate stormwater. Conduct sweeping using vacuum filter equipment to minimize dust generation and to ensure optimal dust removal.

Recommended BMPs:

- In manufacturing operations, train employees to handle powders carefully to prevent generation of dust.
- Use dust filtration/collection systems such as bag house filters, cyclone separators, etc. to control vented dust emissions that could contaminate stormwater. Control of zinc dusts in rubber production is one example.
- Use water spray to flush dust accumulations to sanitary sewers where allowed by the local sewer authority or to other appropriate treatment system.
- Use approved dust suppressants such as those listed in Ecology Publication [*Techniques for Dust Prevention and Suppression*](#), #96-433 (Ecology, 1996). Application of some products may not be appropriate in close proximity to receiving waters or conveyances close to receiving waters. For more information check with Ecology or the local jurisdiction.

Recommended Treatment BMPs: Install sedimentation basins, wet ponds, wet vaults, catch basin filters, vegetated filter strips, or equivalent sediment removal BMPs.

S409 BMPs for Fueling At Dedicated Stations

Description of Pollutant Sources: A fueling station is a facility dedicated to the transfer of fuels from a stationary pumping station to mobile vehicles or equipment. It includes above or under-ground fuel storage facilities. In addition to general service gas stations, fueling may also occur at 24-hour convenience stores, construction sites, warehouses, car washes, manufacturing establishments, port facilities, and businesses with fleet vehicles. Typical causes of stormwater contamination at fueling stations include leaks/spills of fuels, lube oils, radiator coolants, and vehicle washwater.

Pollutant Control Approach: New or substantially remodeled* fueling stations must be constructed on an impervious concrete pad under a roof to keep out rainfall and stormwater run-on. The facility must use a treatment

BMP for contaminated stormwater and wastewaters in the fueling containment area.

** Substantial remodeling includes replacing the canopy, or relocating or adding one or more fuel dispensers in such a way that modify the Portland cement concrete (or equivalent) paving in the fueling area.*

For new or substantially remodeled Fueling Stations:

Applicable Operational BMPs:

- Prepare an emergency spill response and cleanup plan (per [S426 BMPs for Spills of Oil and Hazardous Substances](#)) and have designated trained person(s) available either on site or on call at all times to promptly and properly implement that plan and immediately cleanup all spills. Keep suitable cleanup materials, such as dry adsorbent materials, on site to allow prompt cleanup of a spill.
- Train employees on the proper use of fuel dispensers. Post signs in accordance with the Uniform Fire Code (UFC) or International Fire Code (IFC). Post “No Topping Off” signs (topping off gas tanks causes spillage and vents gas fumes to the air). Make sure that the automatic shutoff on the fuel nozzle is functioning properly.
- The person conducting the fuel transfer must be present at the fueling pump during fuel transfer, particularly at unattended or self-serve stations.
- Keep drained oil filters in a suitable container or drum.

Applicable Structural Source Control BMPs:

- Design the fueling island to control spills (dead-end sump or spill control separator in compliance with the UFC or IFC), and to treat collected stormwater and/or wastewater to required levels. Slope the concrete containment pad around the fueling island toward drains; either trench drains, catch basins and/or a dead-end sump. The slope of the drains shall not be less than 1 percent (Section 7901.8 of the UFC, Section 5703.6.8 of the IFC).
- Drains to treatment facilities must have a normally closed shutoff valve. The spill control sump must be sized in compliance with Section 7901.8 of the UFC; or
- Design the fueling island as a spill containment pad with a sill or berm raised to a minimum of four inches (Section 7901.8 of the UFC) to prevent the runoff of spilled liquids and to prevent run-on of stormwater from the surrounding area. Raised sills are not required at the open-grate trenches that connect to an approved drainage-control system.
- The fueling pad must be paved with Portland cement concrete, or equivalent. Ecology does not consider asphalt an equivalent material.

- The fueling island must have a roof or canopy to prevent the direct entry of precipitation onto the spill containment pad (see [Figure 2.2.1](#)). The roof or canopy should, at a minimum, cover the spill containment pad (within the grade break or fuel dispensing area) and preferably extend several additional feet to reduce the introduction of windblown rain. Convey all roof drains to storm drains outside the fueling containment area.

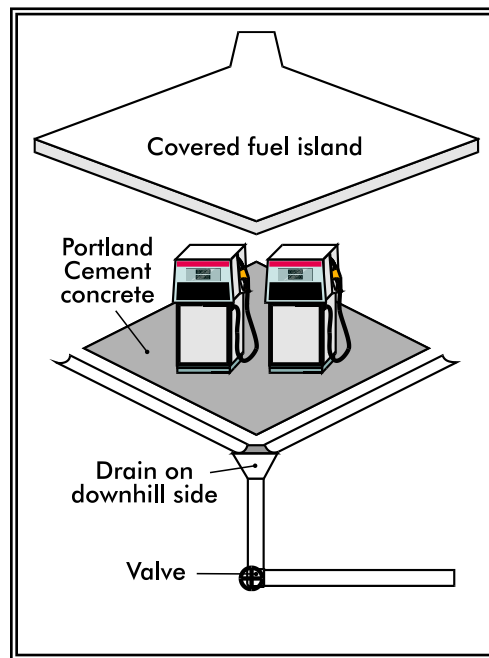


Figure 2.2.1 – Covered Fuel Island

- Convey stormwater collected on the fuel island containment pad to a sanitary sewer system, if approved by the sanitary authority, or to an approved treatment system such as an oil/water separator and a basic treatment BMP. (Basic treatment BMPs are listed in Volume V and include media filters and biofilters). Discharges from treatment systems to storm drains or surface water or to the ground must not display ongoing or recurring visible sheen and must not contain oil and grease.
- Alternatively, collect stormwater from the fuel island containment pad and hold for proper off-site disposal.
- Approval from the local sewer authority is required for conveyance of any fuel-contaminated stormwater to a sanitary sewer. The discharged stormwater must comply with pretreatment regulations ([WAC 173-216-060](#)). These regulations prohibit discharges that could "cause fire or explosion." State and federal pretreatment regulations define an explosive or flammable mixture, based on a flash point determination

of the mixture. Stormwater could be conveyed to a sanitary sewer system if it is determined not to be explosive.

- Transfer the fuel from the delivery tank trucks to the fuel storage tank in impervious contained areas and ensure that appropriate overflow protection is used. Alternatively, cover nearby storm drains during the filling process and use drip pans under all hose connections.

Additional BMP for Vehicles 10 feet in height or greater

A roof or canopy may not be feasible at fueling stations that regularly fuel vehicles that are 10 feet in height or greater, particularly at industrial or WSDOT sites. At those types of fueling facilities, the following BMPs apply, as well as the applicable BMPs and fire prevention (UFC requirements) of this BMP for fueling stations:

- If a roof or canopy is impractical, the concrete fueling pad must be equipped with emergency spill control including a shutoff valve for drainage from the fueling area. Maintain the valve in the closed position in the event of a spill. An electronically actuated valve is preferred to minimize the time lapse between spill and containment. Clean up spills and dispose of materials off-site in accordance with [S406 BMPs for Spills of Oil and Hazardous Substances](#).
- The valve may be opened to convey contaminated stormwater to a sanitary sewer, if approved by the sewer authority, or to oil removal treatment such as an API or CP oil/water separator, catchbasin insert, or equivalent treatment, and then to a basic treatment BMP. Discharges from treatment systems to storm sewer or surface water or to the ground must not display ongoing or recurring visible sheen and must not contain greater than a significant amount of oil and grease.

S410 BMPs for Illicit Connections to Storm Drains

Description of Pollutant Sources: Illicit connections are unpermitted sanitary or process wastewater discharges to a storm sewer or to surface water, rather than to a sanitary sewer, industrial process wastewater, or other appropriate treatment. They can also include swimming pool water, filter backwash, cleaning solutions/washwaters, cooling water, etc. Experience has shown that illicit connections are common, particularly in older buildings.

Pollutant Control Approach: Identify and eliminate unpermitted discharges or obtain an NPDES permit, where necessary, particularly at industrial and commercial facilities.

Applicable Operational BMPs:

- Eliminate unpermitted wastewater discharges to storm sewer, ground water, or surface water.

E-4 BMPs for Storage of Liquids in Permanent Aboveground Tanks

- Place containers mounted for direct removal of a liquid chemical for use by employees inside a containment area as described above. Use a drip pan during liquid transfer (see [Figure 2.2.11](#)).

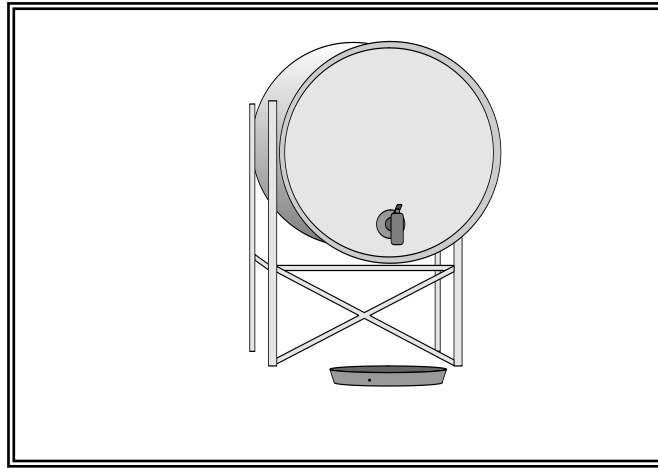


Figure 2.2.11 – Mounted Container - with drip pan
(note that the secondary containment is not shown in this figure)

Applicable Treatment BMP:

Note this treatment BMP for contaminated stormwater from drum storage areas.

- For contaminated stormwater in the containment area, connect the sump outlet to a sanitary sewer, if approved by the local Sewer Authority, or to appropriate treatment such as an API or CP oil/water separator, catch basin filter or other appropriate system (see Volume V). Equip the sump outlet with a normally closed valve to prevent the release of spilled or leaked liquids, especially flammables (compliance with Fire Codes), and dangerous liquids. Open this valve only for the conveyance of contaminated stormwater to treatment.
- Another option for discharge of contaminated stormwater is to pump it from a dead-end sump or catchment to a tank truck or other appropriate vehicle for off-site treatment and/or disposal.

S428 BMPs for Storage of Liquids in Permanent Aboveground Tanks

Description of Pollutant Sources: Aboveground tanks containing liquids (excluding uncontaminated water) may be equipped with a valved drain, vent, pump, and bottom hose connection. Aboveground tanks may be heated with steam heat exchangers equipped with steam traps, if required. Leaks and spills can occur at connections and during liquid transfer. Oil and grease, organics, acids, alkalis, and heavy metals in tank water and condensate drainage can also cause stormwater contamination at storage tanks.

Pollutant Control Approach: Install secondary containment or a double-walled tank. Slope the containment area to a drain with a sump. Operators may need to discharge stormwater collected in the containment area to

treatment such as an API or CP oil/water separator, or equivalent BMP. Add safeguards against accidental releases including protective guards around tanks to protect against vehicle or forklift damage, and tagging valves to reduce human error. *Tank water and condensate discharges are process wastewater that may need an NPDES Permit.*

Applicable Operational BMPs:

- Inspect the tank containment areas regularly for leaks/spills, cracks, corrosion, etc. to identify problem components such as fittings, pipe connections, and valves
- Place adequately sized drip pans beneath all mounted taps and drip/spill locations during filling/unloading of tanks. Operators may need valved drain tubing in mounted drip pans.
- Vacuum sweep and clean the tank storage area regularly, if paved.
- Replace or repair tanks that are leaking, corroded, or otherwise deteriorating.
- All installations shall comply with the Uniform Fire Code ([Appendix IV-D R.2](#)) and the National Electric Code.

Applicable Structural Source Control BMPs:

- Locate permanent tanks in impervious (Portland cement concrete or equivalent) secondary containment surrounded by dikes as illustrated in [Figure 2.2.12](#), or use UL Approved double-walled tanks. The dike must be of sufficient height to provide a containment volume of either 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank, whichever is greater.
- Slope the secondary containment to drain to a dead-end sump or equivalent, for the collection of small spills.
- Include a tank overfill protection system to minimize the risk of spillage during loading.

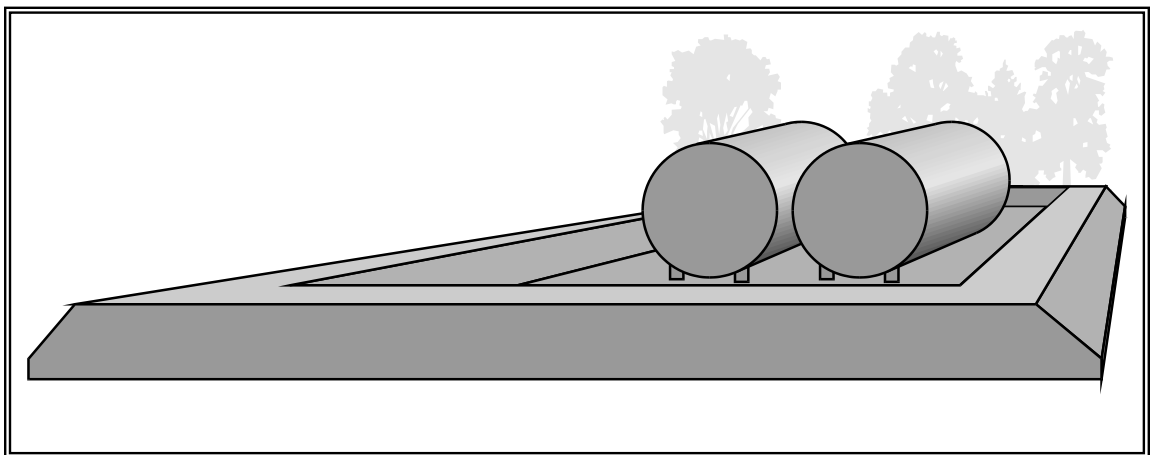


Figure 2.2.12 – Above-ground Tank Storage

Note this applicable treatment BMP for stormwater from petroleum tank farms.

Applicable Treatment BMPs:

- For an uncovered tank containment area, equip the outlet from the spill-containment sump with a normally closed shutoff valve. Operators may open this valve manually or automatically, only to convey contaminated stormwater to approved treatment or disposal, or to convey uncontaminated stormwater to a storm sewer. Evidence of contamination can include the presence of visible sheen, color, or turbidity in the runoff, or existing or historical operational problems at the facility. Use simple pH tests with litmus or pH paper for areas subject to acid or alkaline contamination.
- At petroleum tank farms, convey stormwater contaminated with floating oil or debris in the contained area through an API or CP-type oil/water separator (Volume V, Treatment BMPs), or other approved treatment prior to discharge to storm drain or surface water.

S429 BMPs for Storage or Transfer (Outside) of Solid Raw Materials, Byproducts, or Finished Products

Description of Pollutant Sources: Some pollutant sources stored outside in large piles, stacks, etc. at commercial or industrial establishments include:

- Solid raw materials
- Byproducts
- Gravel
- Sand
- Salts
- Topsoil
- Compost
- Logs
- Sawdust
- Wood chips
- Lumber
- Concrete
- Metal products

Contact between outside bulk materials and stormwater can cause leachate, and erosion of the stored materials. Contaminants may include TSS, BOD, organics, and dissolved salts (sodium, calcium, and magnesium chloride, etc.).

E-5 BMPs for Storage of Liquid, Food Waste, or Dangerous Waste Containers

- Immediately clean up spills. Do not use emulsifiers for cleanup unless there is an appropriate disposal method for the resulting oily wastewater. Do not wash absorbent material down a floor drain or into a storm sewer.
- Locate emergency spill containment and cleanup kit(s) in high-potential spill areas. The contents of the kit shall be appropriate for the type and quantities of chemical liquids stored at the facility.

Recommended Additional Operational BMP: Spill kits should include appropriately lined drums, absorbent pads, and granular or powdered materials for neutralizing acids or alkaline liquids where applicable. In fueling areas: Package absorbent material in small bags for easy use and make available small drums for storage of absorbent and/or used absorbent. Deploy spill kits in a manner that allows rapid access and use by employees.

S427 BMPs for Storage of Liquid, Food Waste, or Dangerous Waste Containers

Description of Pollutant Sources: Steel and plastic drums with volumetric capacities of 55 gallons or less are typically used at industrial facilities for container storage of liquids and powders. The BMPs specified below apply to container(s) located outside a building. Use these BMPs when temporarily storing accumulated food wastes, vegetable or animal grease, used oil, liquid feedstock, cleaning chemicals, or Dangerous Wastes (liquid or solid). These BMPs do not apply when Ecology has permitted the business to store the wastes ([Appendix IV-D R.4](#)). Leaks and spills of pollutant materials during handling and storage are the primary sources of pollutants. Oil and grease, acid/alkali pH, BOD, COD are potential pollutant constituents.

Pollutant Control Approach: Store containers in impervious containment under a roof, or other appropriate cover, or in a building. When collection trucks directly pick up roll-containers, ensure a filet is on both sides of the curb to facilitate moving the dumpster. For storage areas on-site for less than 30 days, consider using a portable temporary secondary system like that shown in [Figure 2.2.8](#) in lieu of a permanent system as described above.

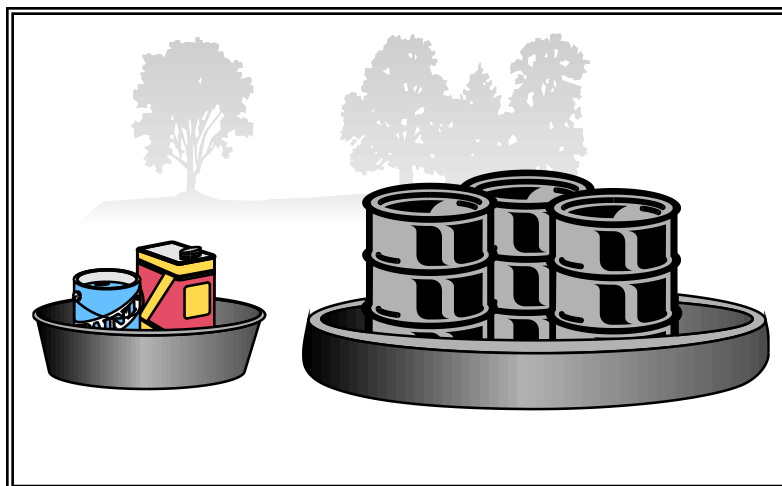


Figure 2.2.8 – Secondary Containment System

Applicable Operational BMPs:

- Place tight-fitting lids on all containers.
- Place drip pans beneath all mounted container taps and at all potential drip and spill locations during filling and unloading of containers.
- Inspect container storage areas regularly for corrosion, structural failure, spills, leaks, overfills, and failure of piping systems. Check containers daily for leaks/spills. Replace containers, and replace and tighten bungs in drums as needed.
- Businesses accumulating Dangerous Wastes that do not contain free liquids need only to store these wastes in a sloped designated area with the containers elevated or otherwise protected from storm water run-on.
- Secure drums when stored in an area where unauthorized persons may gain access in a manner that prevents accidental spillage, pilferage, or any unauthorized use (see [Figure 2.2.9](#)).

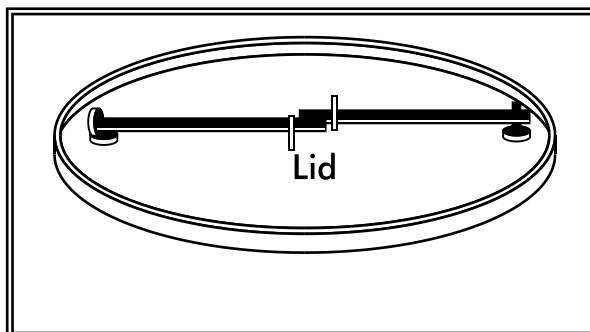


Figure 2.2.9 – Locking System for Drum Lid

- If the material is a Dangerous Waste, the business owner must comply with any additional Ecology requirements as specified in [Appendix IV-D R.3](#).
- Storage of reactive, ignitable, or flammable liquids must comply with the Uniform Fire Code ([Appendix IV-D R.2](#)).
- Cover dumpsters, or keep them under cover such as a lean-to, to prevent the entry of stormwater. Replace or repair leaking garbage dumpsters.
- Drain dumpsters and/or dumpster pads to sanitary sewer. Keep dumpster lids closed. Install waterproof liners.

Applicable Structural Source Control BMPs:

- Keep containers with Dangerous Waste, food waste, or other potential pollutant liquids inside a building unless this is not feasible due to site constraints or Uniform/International Fire Code requirements.
- Store containers in a designated area, which is covered, bermed or diked, paved and impervious in order to contain leaks and spills (see [Figure 2.2.10](#)). Slope the secondary containment to drain into a dead-end sump for the collection of leaks and small spills.
- For liquid wastes, surround the containers with a dike as illustrated in [Figure 2.2.10](#). The dike must be of sufficient height to provide a volume of either 10 percent of the total enclosed container volume or 110 percent of the volume contained in the largest container, whichever is greater.

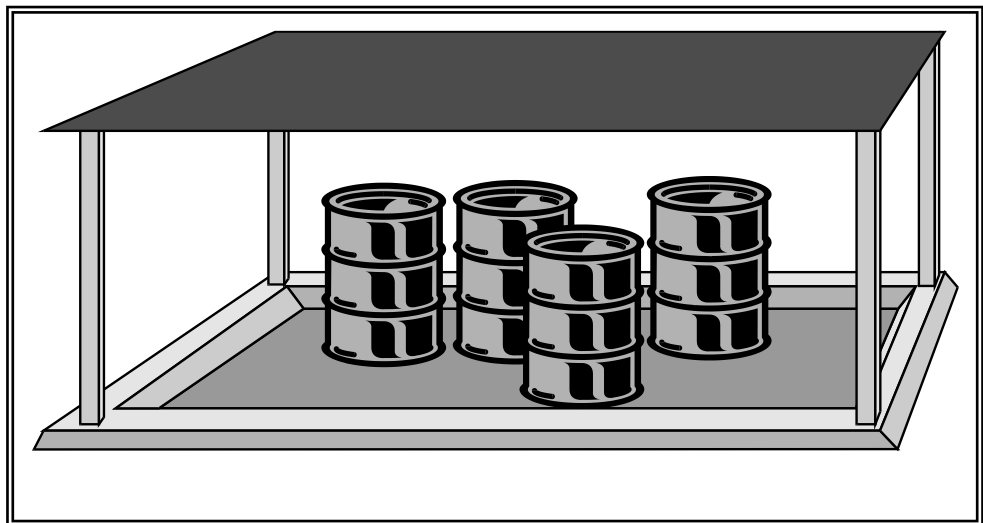


Figure 2.2.10 – Covered and Bermed Containment Area

- Where material is temporarily stored in drums, use a containment system as illustrated, in lieu of the above system (see [Figure 2.2.8](#)).

- Place containers mounted for direct removal of a liquid chemical for use by employees inside a containment area as described above. Use a drip pan during liquid transfer (see [Figure 2.2.11](#)).

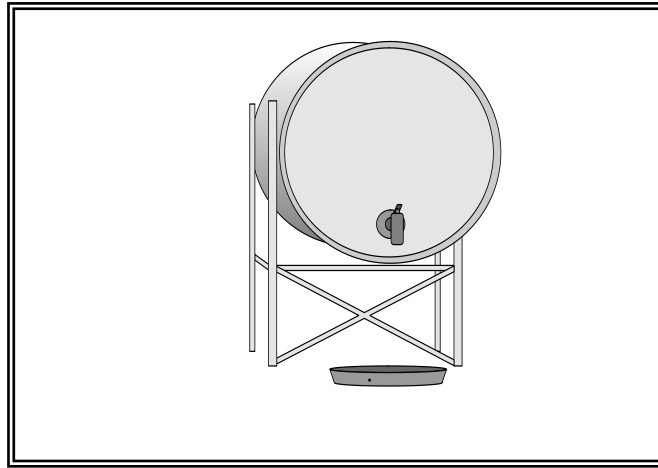


Figure 2.2.11 – Mounted Container - with drip pan
(note that the secondary containment is not shown in this figure)

Applicable Treatment BMP:

Note this treatment BMP for contaminated stormwater from drum storage areas.

- For contaminated stormwater in the containment area, connect the sump outlet to a sanitary sewer, if approved by the local Sewer Authority, or to appropriate treatment such as an API or CP oil/water separator, catch basin filter or other appropriate system (see Volume V). Equip the sump outlet with a normally closed valve to prevent the release of spilled or leaked liquids, especially flammables (compliance with Fire Codes), and dangerous liquids. Open this valve only for the conveyance of contaminated stormwater to treatment.
- Another option for discharge of contaminated stormwater is to pump it from a dead-end sump or catchment to a tank truck or other appropriate vehicle for off-site treatment and/or disposal.

S428 BMPs for Storage of Liquids in Permanent Aboveground Tanks

Description of Pollutant Sources: Aboveground tanks containing liquids (excluding uncontaminated water) may be equipped with a valved drain, vent, pump, and bottom hose connection. Aboveground tanks may be heated with steam heat exchangers equipped with steam traps, if required. Leaks and spills can occur at connections and during liquid transfer. Oil and grease, organics, acids, alkalis, and heavy metals in tank water and condensate drainage can also cause stormwater contamination at storage tanks.

Pollutant Control Approach: Install secondary containment or a double-walled tank. Slope the containment area to a drain with a sump. Operators may need to discharge stormwater collected in the containment area to

E-6 BMPs for Storage or Transfer
(Outside) of Solid Raw Materials,
Byproducts, or Finished Products

Note this applicable treatment BMP for stormwater from petroleum tank farms.

Applicable Treatment BMPs:

- For an uncovered tank containment area, equip the outlet from the spill-containment sump with a normally closed shutoff valve. Operators may open this valve manually or automatically, only to convey contaminated stormwater to approved treatment or disposal, or to convey uncontaminated stormwater to a storm sewer. Evidence of contamination can include the presence of visible sheen, color, or turbidity in the runoff, or existing or historical operational problems at the facility. Use simple pH tests with litmus or pH paper for areas subject to acid or alkaline contamination.
- At petroleum tank farms, convey stormwater contaminated with floating oil or debris in the contained area through an API or CP-type oil/water separator (Volume V, Treatment BMPs), or other approved treatment prior to discharge to storm drain or surface water.

S429 BMPs for Storage or Transfer (Outside) of Solid Raw Materials, Byproducts, or Finished Products

Description of Pollutant Sources: Some pollutant sources stored outside in large piles, stacks, etc. at commercial or industrial establishments include:

- Solid raw materials
- Byproducts
- Gravel
- Sand
- Salts
- Topsoil
- Compost
- Logs
- Sawdust
- Wood chips
- Lumber
- Concrete
- Metal products

Contact between outside bulk materials and stormwater can cause leachate, and erosion of the stored materials. Contaminants may include TSS, BOD, organics, and dissolved salts (sodium, calcium, and magnesium chloride, etc.).

Pollutant Control Approach: Provide impervious containment with berms, dikes, etc. and/or cover to prevent run-on and discharge of leachate pollutant(s) and TSS.

Applicable Operational BMP: Do not hose down the contained stockpile area to a storm drain or a conveyance to a storm drain, or to a receiving water.

Applicable Structural Source Control BMP Options: The source control BMP options listed below are applicable to:

- Stockpiles greater than 5 cubic yards of erodible or water soluble materials such as:
 - Soil
 - Road deicing salts
 - Compost
 - Unwashed sand and gravel
 - Sawdust
- Outside storage areas for solid materials such as:
 - Logs
 - Bark
 - Lumber
 - Metal products

Choose one or more of the following Source Controls:

- Store in a building or paved and bermed covered area as shown in [Figure 2.2.13](#), or;

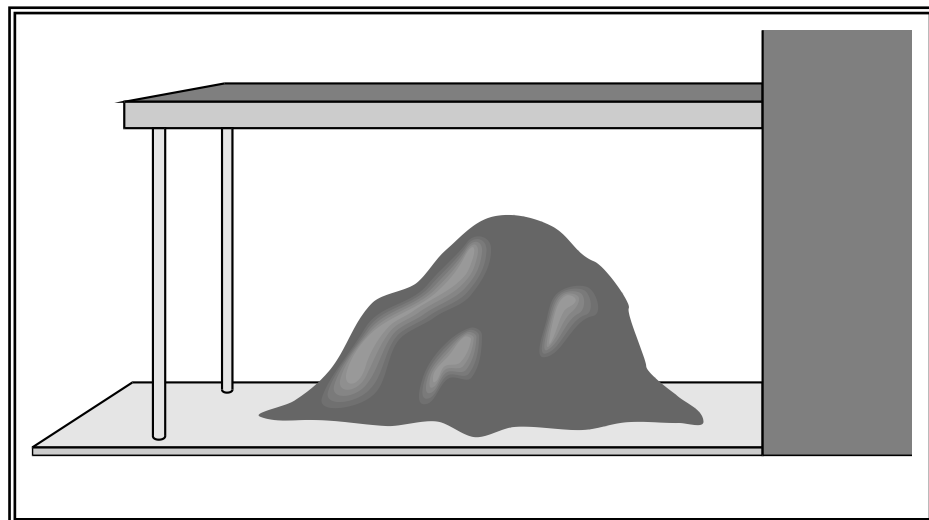


Figure 2.2.13 – Covered Storage Area for Bulk Solids (include berm if needed)

- Place temporary plastic sheeting (polyethylene, polypropylene, hypalon, or equivalent) over the material as illustrated (see [Figure 2.2.14](#)), or;

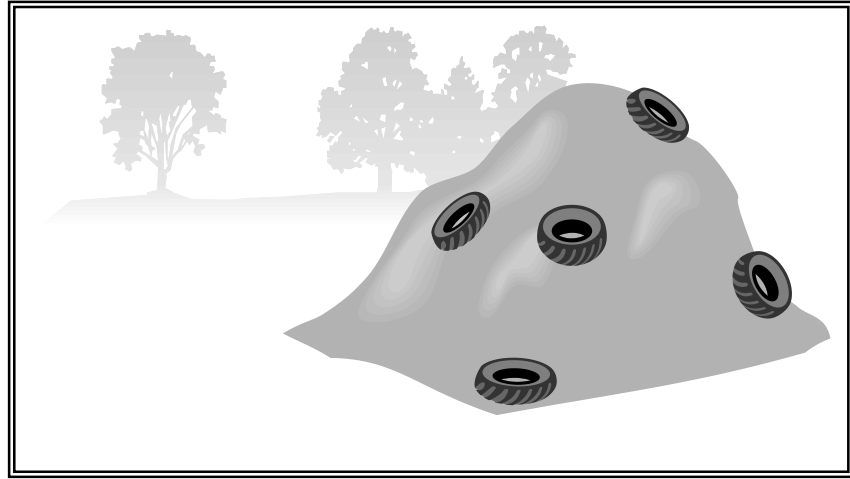


Figure 2.2.14 – Material Covered with Plastic Sheetting

- Pave the area and install a stormwater drainage system. Place curbs or berms along the perimeter of the area to prevent the run-on of uncontaminated stormwater and to collect and convey runoff to treatment. Slope the paved area in a manner that minimizes the contact between stormwater (e.g., pooling) and leachable materials in compost, logs, bark, wood chips, etc.
- For large uncovered stockpiles, implement containment practices at the perimeter of the site and at any catch basins as needed to prevent erosion and discharge of the stockpiled material off-site or to a storm drain. Ensure that no direct discharge of contaminated stormwater to catch basins exists without conveying runoff through an appropriate treatment BMP.

Applicable Treatment BMP: Convey contaminated stormwater from the stockpile area to a wet pond, wet vault, settling basin, media filter, or other appropriate treatment system depending on the contamination.

Recommended Additional Operational BMPs:

- Maintain drainage areas in and around storage of solid materials with a minimum slope of 1.5 percent to prevent pooling and minimize leachate formation. Areas should be sloped to drain stormwater to the perimeter for collection or to internal drainage “alleyways” where no stockpiled material exists.
- Sweep paved storage areas regularly for collection and disposal of loose solid materials.
- If and when feasible, collect and recycle water-soluble materials (leachates).

- Stock cleanup materials, such as brooms, dustpans, and vacuum sweepers near the storage area.

S430 BMPs for Urban Streets

Description of Pollutant Sources: Urban streets can be the source of vegetative debris, paper, fine dust, vehicle liquids, tire and brake wear residues, heavy metals (lead and zinc), soil particles, ice control salts, domestic wastes, lawn chemicals, and vehicle combustion products. Street surface contaminants contain significant concentrations of particle sizes less than 250 microns (Sartor and Boyd, 1972).

Pollutant Control Approach: Conduct efficient street sweeping where and when appropriate to minimize the contamination of stormwater. Do not wash street debris into storm drains.

Facilities not covered under the Industrial Stormwater General Permit may consider a minimum amount of water washing of streets. All facilities must comply with their local stormwater requirements for discharging to storm sewers. Municipal NPDES permittees are required to limit street wash water discharges and may have special conditions or treatment requirements.

Recommended BMPs:

- For maximum stormwater pollutant reductions on curbed streets and high volume parking lots, use efficient vacuum sweepers (refer to Volume V, Ch. 12, for information about high-efficiency vacuum sweeper technology).

Note: High-efficiency street sweepers utilize strong vacuums and the mechanical action of main and gutter brooms combined with an air filtration system that only returns clean air to the atmosphere (i.e., filters very fine particulates). They sweep dry and use no water since they do not emit any dust.

High-efficiency vacuum sweepers have the capability of removing, 80 percent or more of the accumulated street dirt particles whose diameters are less than 250 microns (Sutherland, 1998). This assumes pavements under good condition and reasonably expected accumulation conditions.

- For moderate stormwater pollutant reductions on curbed streets use regenerative air sweepers or tandem sweeping operations.

Note: A tandem sweeping operation involves a single pass of a mechanical sweeper followed immediately by a single pass of a vacuum sweeper or regenerative air sweeper.

- *A regenerative air sweeper blows air down on the pavement to entrain particles and uses a return vacuum to transport the material to the hopper.*

E-7 BMPs for Washing
and Steam Cleaning
Vehicles/Equipment/Building Structures

S431 BMPs for Washing and Steam Cleaning Vehicles/ Equipment/ Building Structures

Description of Pollutant Sources: Pollutant sources include the commercial cleaning of vehicles, aircraft, vessels, and other transportation, restaurant kitchens, carpets, and industrial equipment, and large buildings with low- or high-pressure water or steam. This includes “charity” car washes at gas stations and commercial parking lots. The cleaning can include hand washing, scrubbing, sanding, etc. Washwater from cleaning activities can contain oil and grease, suspended solids, heavy metals, soluble organics, soaps, and detergents that can contaminate stormwater.

Pollutant Control Approach: The preferred approach is to cover and/or contain the cleaning activity, or conduct the activity inside a building, to separate the uncontaminated stormwater from the washwater sources. Convey washwater to a sanitary sewer after approval by the local sewer authority. Provide temporary storage before proper disposal, or recycling. Under this preferred approach, no discharge to the ground, to a storm drain, or to surface water should occur.

The Industrial Stormwater General Permit prohibits the discharge of process wastewater (e.g., vehicle washing wastewater) to ground water or surface water. Stormwater that commingles with process wastewater is considered process wastewater.

Facilities not covered under the Industrial Stormwater General Permit that are unable to follow one of the preferred approaches listed above may discharge washwater to the ground only after proper treatment in accordance with *Ecology guidance WQ-95-056, [Vehicle and Equipment Washwater Discharges/Best Management Practices Manual](#), September 2007 or most recent update*. Note that the [Vehicle and Equipment Washwater Discharges/Best Management Practices Manual](#) is scheduled to be updated in 2012. Please check for the most recent version of Ecology guidance.

The quality of any discharge to the ground after proper treatment must comply with Ecology’s Ground Water Quality Standards, [Chapter 173-200 WAC](#).

Facilities not covered under the Industrial Stormwater General Permit that are unable to comply with one of the preferred approaches and want to discharge to storm sewer, must meet their local stormwater requirements. Local authorities may require treatment prior to discharge.

Contact the local Ecology Regional Office to discuss permitting options for discharge of washwater to surface water or to a storm drain after on-site treatment.

Applicable Structural Source Control BMPs: Conduct vehicle/equipment washing in one of the following locations:

- At a commercial washing facility in which the washing occurs in an enclosure and drains to the sanitary sewer, or
- In a building constructed specifically for washing of vehicles and equipment, which drains to a sanitary sewer.

Conduct outside washing operation in a designated wash area with the following features:

- In a paved area, construct a spill containment pad to prevent the run-on of stormwater from adjacent areas. Slope the spill containment area to collect washwater in a containment pad drain system with perimeter drains, trench drains or catchment drains. Size the containment pad to extend out a minimum of four feet on all sides of the washed vehicles and/or equipment.
- Convey the washwater to a sump (like a grit separator) and then to a sanitary sewer (if allowed by the local Sewer Authority), or other appropriate wastewater treatment or recycle system. The containment sump must have a positive control outlet valve for spill control with live containment volume, and oil/water separation. Size the minimum live storage volume to contain the maximum expected daily washwater flow plus the sludge storage volume below the outlet pipe. Shut the outlet valve during the washing cycle to collect the washwater in the sump. The valve should remain shut for at least two hours following the washing operation to allow the oil and solids to separate before discharge to a sanitary sewer.
- Close the inlet valve in the discharge pipe when washing is not occurring, thereby preventing the entry of uncontaminated stormwater into the pretreatment/ treatment system. The stormwater can then drain into the conveyance/discharge system outside of the wash pad (essentially bypassing the sanitary sewer or recycle system). Post signs to inform people of the operation and purpose of the valve. Clean the concrete pad thoroughly until there is no foam or visible sheen in the washwater prior to closing the inlet valve and allowing uncontaminated stormwater to overflow and drain off the pad.
- Collect the washwater from building structures and convey it to appropriate treatment such as a sanitary sewer system if it contains oils, soaps, or detergents. If the washwater does not contain oils, soaps, or detergents (in this case only a low pressure, clean, cold water rinse is allowed) then it could drain to soils that have sufficient natural attenuation capacity for dust and sediment.

Note that the purpose of the valve is to convey only washwater and contaminated stormwater to a treatment system.

Recommended Additional BMPs:

- Mark the wash area at gas stations, multi-family residences and any other business where non-employees wash vehicles.
- Operators may use a manually operated positive control valve for uncovered wash pads, but a pneumatic or electric valve system is preferable. The valve may be on a timer circuit and opened upon completion of a wash cycle. After draining the sump or separator, the timer would then close the valve.
- Use phosphate-free biodegradable detergents when practicable.
- Consider recycling the washwater.

Operators may use soluble/emulsifiable detergents in the wash medium and should use it with care and the appropriate treatment. Carefully consider the selection of soaps and detergents and treatment BMPs. Oil/water separators are ineffective in removing emulsified or water soluble detergents. Another treatment appropriate for emulsified and water soluble detergents may be required.

Exceptions

- At gas stations (for charity car washes) or commercial parking lots, where it is not possible to discharge the washwater to a sanitary sewer, a temporary plug or a temporary sump pump can be used at the storm drain to collect the washwater for off-site disposal such as to a nearby sanitary sewer.
- New and used car dealerships may wash vehicles in the parking stalls as long as employees use a temporary plug system to collect the washwater for disposal as stated above, or an approved treatment system for the washwater is in place.

At industrial sites, contact Ecology for NPDES Permit requirements even when not using soaps, detergents, and/or other chemical cleaners in washing trucks.

S432 BMPs for Wood Treatment Areas

Description of Pollutant Sources: Wood treatment includes both anti-staining and wood preserving using pressure processes or by dipping or spraying. Wood preservatives include creosote, creosote/coal tar, pentachlorophenol, copper naphthenate, arsenic trioxide, malathion, or inorganic arsenicals such as chromated copper arsenate, acid copper chromate, chromate zinc chloride, and fluor-chrome-arsenate-phenol. Anti-staining chemical additives include iodo-prophenyl-butyl carbamate, dimethyl sulfoxide, didecyl dimethyl ammonium chloride, sodium azide, 8-quinolinol; copper (II) chelate, sodium ortho-phenylphenate, 2-(thiocyanomethylthio)-benzothiazole (TCMTB) and methylene bis-(thiocyanate), and zinc naphthenate.

Appendix F

Training Record

TRAINING RECORD

DATE: _____ INSTRUCTOR'S NAME: _____

The training included a discussion of each section of the SWPPP and highlighted spill response, good housekeeping, and proper operation and maintenance of equipment. Other topics and discussion items included:

Instructor's Signature:

[illegible]

Appendix G

Sampling SOP

MRB ENVIRONMENTAL
GMT Stormwater Sampling SOP
Update: 1.0
Revision Date: September 27, 2012



BACKGROUND

Stormwater management is dictated by the facility's Stormwater Management Pollution Prevention Plan (SWPPP) and the facility's discharge permit (WA0040347). The specifics for how stormwater is managed are identified in the SWPPP and the treatment plant Operations & Maintenance (O&M) Plan; including a description of the facility, the best management practices (BMPs) to be implemented, and the regulatory permit requirements that must be met. The purpose of this SOP is to describe in generalities how to collect representative samples of effluent from the stormwater treatment plant.

HAZARD SUMMARY

Potential hazards associated with collecting include physical hazards, biological hazards, and exposure hazards. Physical hazards associated with collecting stormwater samples are typically associated with accessing hard to reach areas such as discharge pipes or areas with limited access. Biological hazards (i.e., rodents) may be present in some areas. Though less likely, there may be an exposure hazards associated with sampling the discharge.

SAFETY

In general, the proper PPE for collecting samples are:

- Hard hat
- Safety glasses with side shields
- Steel toed boots with washable soles or rubber boots
- Disposable nitrile gloves

SAMPLING PROCEDURES

The sampling procedure will depend, to some extent on the permit requirements, and whether you are collecting a composite sample (equal aliquots over a period of time) or a grab sample. In general, samples are to be collected using the following steps.

1. Mobilize sampling material to the sample location (outfall or sample port). Sampling material include:
 - a. Zipper baggies
 - b. Disposable nitrile gloves
 - c. Laboratory provided sample bottles
 - d. Cooler with ice
 - e. Chain-of-Custody forms
 - f. Aluminum foil
2. Samples for volatile analysis (VOCs or BTEX) should be collected first, then semi-volatile samples (SVOCs, PAHs), followed by the rest.
3. Label the sample jar with the time, date, sampler name, analysis requested, and unique sample id number before the sample is collected. Place a clear piece of tape across the sample label to keep the label from



falling off.

4. **FOR GRAB SAMPLES ONLY.** Place the sample jar under the discharge pipe or sample port at an angle to allow the water to fill the sample jar slowly and in a controlled manner. Fill the jar towards the top but not to 100% full (except for VOCs and SVOCs). If the jar has preservative in it, make sure the sample is not overfilled forcing out the preservative. If it is overfilled, discard the sample and get a new laboratory provided sample jar with preservative and repeat the process.
5. **FOR COMPOSITE SAMPLES ONLY.** Use a clean stainless steel bucket to collect an equal aliquot of effluent at regular intervals for a specific period of time (usually 8 hours). After the composite sample has been collected, fill the sample jars as described in step 4, by carefully pouring water from the stainless steel bucket into the sample jars. Any samples for volatile compounds or low level mercury are to be collected as grab samples after the last of the composite sample aliquots have been collected.
6. After the sample jar is filled and capped, place the sample in a zipper baggie and place it in a chilled cooler.
7. When all the sample jars are filled, complete the Chain-of-Custody. Do not leave any blank lines or columns, but put a single line through each with your initials and date above the line.
8. Ensure there is adequate ice in the cooler to keep the samples chilled to approximately 4 degrees celcius
9. If the cooler is leaving your custody/possession, tape the cooler shut with duct tape (or equivalent) and date and initial the tape. Attach the COC to the top of the cooler and relinquish the samples to the courier.
10. If the samples are being shipped via courier, it is recommended that the samples be packed accordingly. In that case, a plastic garbage bag should be used to line the cooler. The sample bottles should be double-bagged and set carefully in the cooler with ice place around the sides and between the sample bottles. The plastic garbage bag should be sealed and, if necessary, the cooler should be packed with other material to minimize the potential for the material to shift during transit. The COC should be placed in a zipper baggie and taped to the inside lid of the cooler. Be sure and sign the COC to relinquish the samples and keep a copy of the COC for your records. Put the shipping tracking number on the COC and verify with the lab that the sample have been received as soon as possible.

******IMPORTANT******

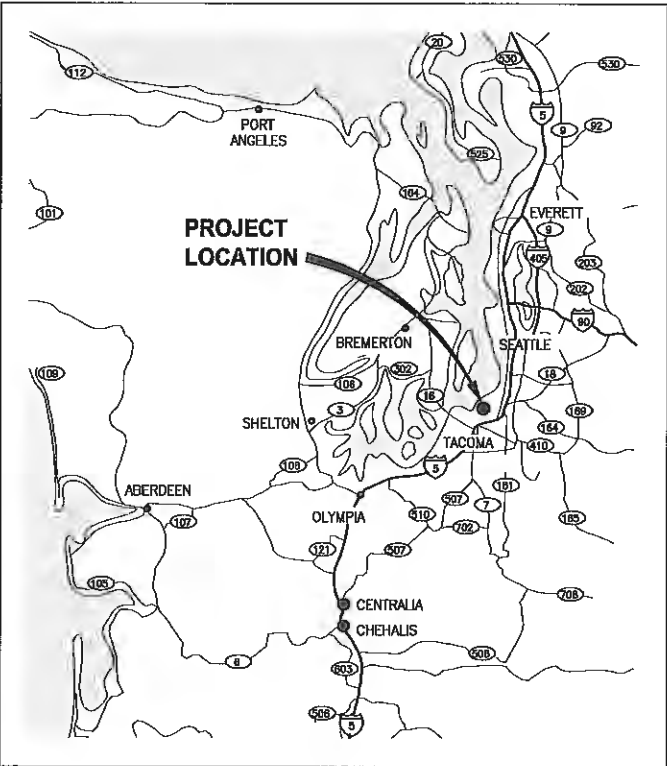
***SAMPLE ANALYTES AND ANALYTICAL METHODS ARE PERMIT- AND STATE-SPECIFIC.
ALWAYS REFER TO YOUR SITE-SPECIFIC PERMIT TO ENSURE YOU ARE SAMPLING AT
THE CORRECT FREQUENCY, USING THE PROPER ANALYTICAL METHODS, AND
TESTING FOR THE PROPER ANALYTES.***

Appendix D.1

Schnitzer Steel Stormwater Improvements Drawings



SCHNITZER STEEL STORMWATER IMPROVEMENTS TACOMA, WASHINGTON



LOCATION MAP
NO SCALE

SITE INFORMATION

PROPERTY: SCHNITZER STEEL OF TACOMA
1902 MARINE VIEW DRIVE
TACOMA, WA 98422

CONTACT: BRYAN GRAHAM, NNW REGIONAL ENVIRONMENTAL MANAGER
(253) 404-6686
(253) 572-4049 (FAX)

CALL TWO WORKING DAYS
BEFORE YOU DIG

1-800-424-5555
UTILITIES UNDERGROUND LOCATION CENTER



VICINITY MAP
NO SCALE

SHEET INDEX

DWG. NO.	SHEET NO.	SHEET TITLE
1	G1	COVER SHEET, SHEET INDEX AND VICINITY MAP
2	C1	LEGEND, ABBREVIATIONS AND GENERAL NOTES
3	C2	OVERALL SITE PLAN
4	C3	TREATMENT PLANT AREA SITE PLAN
5	C4	TREATMENT PLANT AREA DETAILS
6	C5	HYDRODYNAMIC SEPARATOR PLAN, PROFILE AND DETAILS
7	C6	TREATMENT PLANT FORCE MAIN PLAN AND PROFILE
8	S1	ABBREVIATIONS, DESIGN NOTES AND INSPECTIONS
9	S2	STRUCTURAL GENERAL NOTES
10	S3	TREATMENT BUILDING PLAN
11	S4	TREATMENT BUILDING ELEVATIONS AND DETAIL
12	S5	TREATMENT BUILDING FOUNDATION PLAN
13	S6	TREATMENT BUILDING FOUNDATION SECTIONS AND DETAILS I
14	S7	TYPICAL STRUCTURAL DETAILS
15	S8	LIFT STATION #1 AND #2 MODIFICATIONS
16	S9	TYPICAL PIPE SUPPORTS I
17	S10	TYPICAL PIPE SUPPORTS II
18	S11	TYPICAL PIPE SUPPORTS III
19	S12	TYPICAL PIPE SUPPORTS IV
20	P1	PROCESS LEGEND AND SYMBOLS
21	P2	PROCESS SCHEMATIC I
22	P3	PROCESS SCHEMATIC II
23	P4	PROCESS SCHEMATIC III
24	P5	PROCESS SCHEMATIC IV
25	P6	PROCESS SCHEMATIC V
26	M1	MECHANICAL LEGEND AND NOTES
27	M2	LIFT STATION #1 PLAN AND SECTION
28	M3	LIFT STATION #2 PLAN AND SECTION
29	M4	LIFT STATION #3 PLAN AND SECTION
30	M5	TANK FARM PIPING PLAN
31	M6	TANK FARM ISOMETRIC
32	M7	TANK FARM PIPING SECTION I
33	M8	TANK FARM PIPING SECTION II
34	M9	TANK FARM PIPING SECTION III
35	M10	TREATMENT SYSTEM PIPING PLAN
36	M11	CHEMICAL TANK AREA
37	M12	SLUDGE THICKENING AREA
38	M13	TREATMENT SYSTEM PIPING SECTIONS AND DETAILS I
39	M14	TREATMENT SYSTEM PIPING SECTIONS AND DETAILS II
40	M15	TREATMENT SYSTEM PIPING SECTIONS AND DETAILS III
41	M16	TREATMENT SYSTEM PIPING SECTIONS AND DETAILS IV
42	M17	TREATMENT SYSTEM EQUIPMENT SECTIONS AND DETAILS I
43	M18	TREATMENT SYSTEM EQUIPMENT SECTIONS AND DETAILS II
44	M19	TREATMENT SYSTEM EQUIPMENT SECTIONS AND DETAILS III
45	M20	TREATMENT SYSTEM EQUIPMENT SECTIONS AND DETAILS IV
46	M21	TREATMENT BUILDING HEATING, VENTILATION PLAN AND DETAILS
47	M22	TREATMENT BUILDING PLUMBING PLAN, SECTIONS AND DETAILS
48	M23	UTILITY STATION DETAILS
49	M24	TYPICAL DETAILS
50	E1	ELECTRICAL LEGEND SHEET
51	E2	ELECTRICAL SITE AND UTILITY PLAN
52	E3	TREATMENT BUILDING ONE LINE DIAGRAM
53	E4	TANK FARM ELECTRICAL PLAN
54	E5	TREATMENT BUILDING ELECTRICAL POWER PLAN
55	E6	TREATMENT BUILDING ELECTRICAL SECTIONS
56	E7	TREATMENT BUILDING LIGHTING AND GROUNDING PLAN
57	E8	ELECTRICAL DETAILS I
58	E9	ELECTRICAL DETAILS II
59	E10	ELECTRICAL INTERCONNECTION DIAGRAM I
60	E11	ELECTRICAL INTERCONNECTION DIAGRAM II
61	E12	ELECTRICAL INTERCONNECTION DIAGRAM III
62	E13	CALCULATIONS AND PANEL SCHEDULE
63	E14	MAIN CONTROL PANEL MCP-100
64	E15	CONTROL DIAGRAMS
65	E16	I/O WIRING STANDARDS



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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**

TACOMA, WASHINGTON

**COVER SHEET, SHEET INDEX
AND VICINITY MAP**

DRAWING NO.
1 OF 65

G1

REVISED TO CONFORM WITH
CONSTRUCTION RECORDS
DATE: 08/26/12 BY: BTH

REVISIONS	DATE	BY	DESIGNED
			B. HARDY
			S. RASMUSSEN
			CHECKED
			APPROVED

ONE INCH AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

FILE NAME
BIR3312002 G-01

JOB NO.
273-3312-004

DATE
OCTOBER 2012

DATE: Oct 09, 2012 - 2:03 PM
PLOTTER: S. Rasmussen
LAYOUT: C1
IMAGES: XREFS: 4653312004-1B 1 BTH-RE WA

GENERAL NOTES

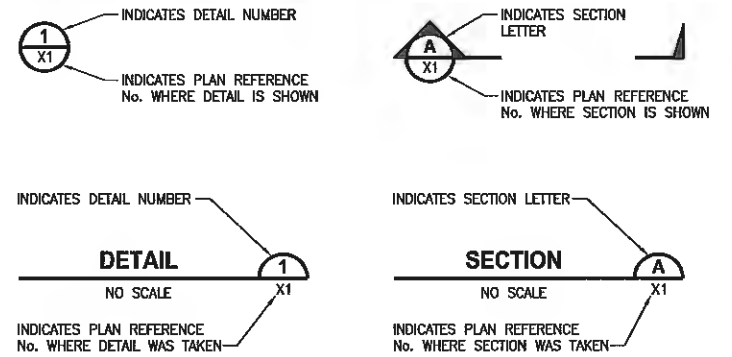
EXISTING

-----250-----	INDEX CONTOURS
-----	INTERMEDIATE CONTOURS
-----	PROPERTY LOT LINE
-----	RIGHT OF WAY
-----	CEMENT CONCRETE SIDEWALK
-x-x-	CHAINLINK FENCE
=====	CURB
////	ASPHALT
-----P-----	POWER LINE
-----G-----	GAS LINE
-----SS-----	SANITARY SEWER
-----SD-----	STORMDRAIN
-----T-----	OVERHEAD TELEPHONE
-----W-----	WATER
[]	BUILDING
⊙	MONUMENT (SURFACE)
⊕	MONUMENT (CASED)
⊙	SIGN
⊙	SANITARY SEWER MANHOLE
○	SANITARY SEWER CLEANOUT
⊕	STORMDRAIN MANHOLE
□	STORMDRAIN CATCH BASIN
⊗	FIRE HYDRANT
⊗	GATE VALVE
⊗	WATER METER
⊗	WATER STANDPIPE
⊕	TELEPHONE VAULT
□	TELEPHONE RISER
→	GUY ANCHOR
⊗	GAS METER
⊗	UTILITY POST
⊕	POWER TRANSFORMER
⊗	POWER TELEPHONE POLE
⊗	UTILITY LIGHT
⊗	LUMINAIRE
○	BOLLARD

ABBREVIATIONS

AB	--	ABANDONED	IE	--	INVERT ELEVATION
⊙	--	AT	IRR	--	IRRIGATION
ACP	--	ASPHALT CONCRETE PAVEMENT	L	--	LENGTH
AP	--	ANGLE POINT	LP	--	LOW POINT
BSB	--	BUILDING SET BACK	LF	--	LINEAR FEET
BW	--	BOTTOM OF WALL	LT	--	LEFT
CL	--	CENTERLINE	MAX	--	MAXIMUM
CB	--	CATCH BASIN	MH	--	MANHOLE
CDF	--	CONTROLLED DENSITY FILL	MIN	--	MINIMUM
CEM	--	CEMENT	No. #	--	NUMBER
CESP	--	CONCRETE ENCASED STEEL PIPE	NTS	--	NOT TO SCALE
CL	--	CLASS	OD	--	OUTSIDE DIAMETER
CMP	--	CORRUGATED METAL PIPE	OP	--	OVERHEAD POWER
CONC	--	CONCRETE	OWS	--	OIL WATER SEPARATOR
CONST	--	CONSTRUCTION	PERF	--	PERFORATED
CP	--	CONCRETE PIPE	PVC	--	POLYVINYL CHLORIDE
CPE	--	CORRUGATED POLYETHYLENE	R	--	RADIUS OR RISER
CSBC	--	CRUSHED SURFACING BASE COURSE	RCP	--	REINFORCED CONCRETE PIPE
CSTC	--	CRUSHED SURFACING TOP COURSE	REQD	--	REQUIRED
CY	--	CUBIC YARD	ROW, R/W	--	RIGHT-OF-WAY
D.I.	--	DUCTILE IRON	RP	--	RADIUS POINT
DIA	--	DIAMETER	RT	--	RIGHT
D/W	--	DRIVEWAY	SHT	--	SHEET
EG	--	EDGE OF GRAVEL	SIM	--	SIMILAR
EL	--	ELEVATION	SS	--	SANITARY SEWER
ELEV	--	ELEVATION	SD	--	STORM DRAIN
EOP	--	EDGE OF PAVEMENT	STA	--	STATION
ESMT	--	EASEMENT	S/W	--	SIDEWALK
EX	--	EXISTING	TW	--	TOP OF WALL
FG	--	FINISH GRADE	TBC	--	TOP BACK OF CURB
FL	--	FLOW LINE	TYP	--	TYPICAL
FT	--	FEET	U.N.O.	--	UNLESS NOTED OTHERWISE
G	--	GAS	UP	--	UNDERGROUND POWER
GALV	--	GALVANIZED	VERT	--	VERTICAL
GB	--	GRADE BREAK	W/	--	WITH
HDPE	--	HIGH DENSITY POLYETHYLENE	W	--	WATER
HMA	--	HOT MIX ASPHALT	YD	--	YARD DRAIN
HORIZ	--	HORIZONTAL			

DETAIL AND SECTION DESIGNATIONS



SURVEYOR'S NOTES:

- BOUNDARY INFORMATION SHOWN HEREON IS FOR REFERENCE PURPOSED ONLY. PARAMETRIX DID NOT PERFORM A BOUNDARY RETRACEMENT SURVEY ON THIS SITE, THEREFORE BOUNDARY INFORMATION SHOWN IS TO BE CONSIDERED UNRELIABLE UNTIL ADDITIONAL BOUNDARY CONFIRMATION HAS BEEN PERFORMED
- FEATURES AND CONTOURS SHOWN ARE BASED ON A LIMITED TOPOGRAPHY SURVEY PER SPECIFIC SCOPE ITEMS. ITEMS SHOWN DO NOT SHOW ALL SITE FEATURES ASSOCIATED WHICH MAY AFFECT TOPOGRAPHY IN SOME AREAS.

HORIZONTAL DATUM:

HORIZONTAL DATUM IS NAD 1983(2002.0) BASED ON NATIONAL GEODETIC SURVEY (NGS) CONTINUOUSLY OPERATING REFERENCE STATIONS (COORS).

PROJECTION IS WASHINGTON STATE PLANE ZONE SOUTH, U.S. SURVEY FEET

VERTICAL DATUM:

VERTICAL DATUM IS MEAN LOWER LOW WATER (MLLW) AS DEFINED BY THE NATIONAL OCEAN SERVICE FOR COMMENCEMENT BAY, BENCH MARK "TIDE 22 1933" = 19.39' FOR THE 1960-1978 TIDAL EPOCH

"TIDE 22 1933" IS A STANDARD DISK SET IN A CONCRETE SIDEWALK ON THE NORTH SIDE OF AND THE EAST END OF THE EAST 11TH STREET BRIDGE OVER THE PUYALLUP RIVER. IT IS LOCATED ABOUT 3.5 FEET NORTH OF A LAMP POST.

BENCHMARK:

TIDAL 22 (1960-1978 EPOCH)
PID: #SY0536
VM: #13315
ELEVATION = 19.39'

CONVERSIONS:

NGVD 29 TO MLLW
ADD 6.17'
NGVD 29 ELEV.+6.17'=MLLW
ELEV

NAVD 88 TO MLLW
ADD 2.67'
NAVD 88 ELEV.+2.67'=MLLW
ELEV

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			B. HARDY
			S. RASMUSSEN
			CHECKED
			APPROVED

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FILE NAME ER3312002 C-01
JOB NO. 273-3312-004
DATE OCTOBER 2012



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PROJECT NAME	SCHNITZER STEEL STORMWATER IMPROVEMENTS
	TACOMA, WASHINGTON

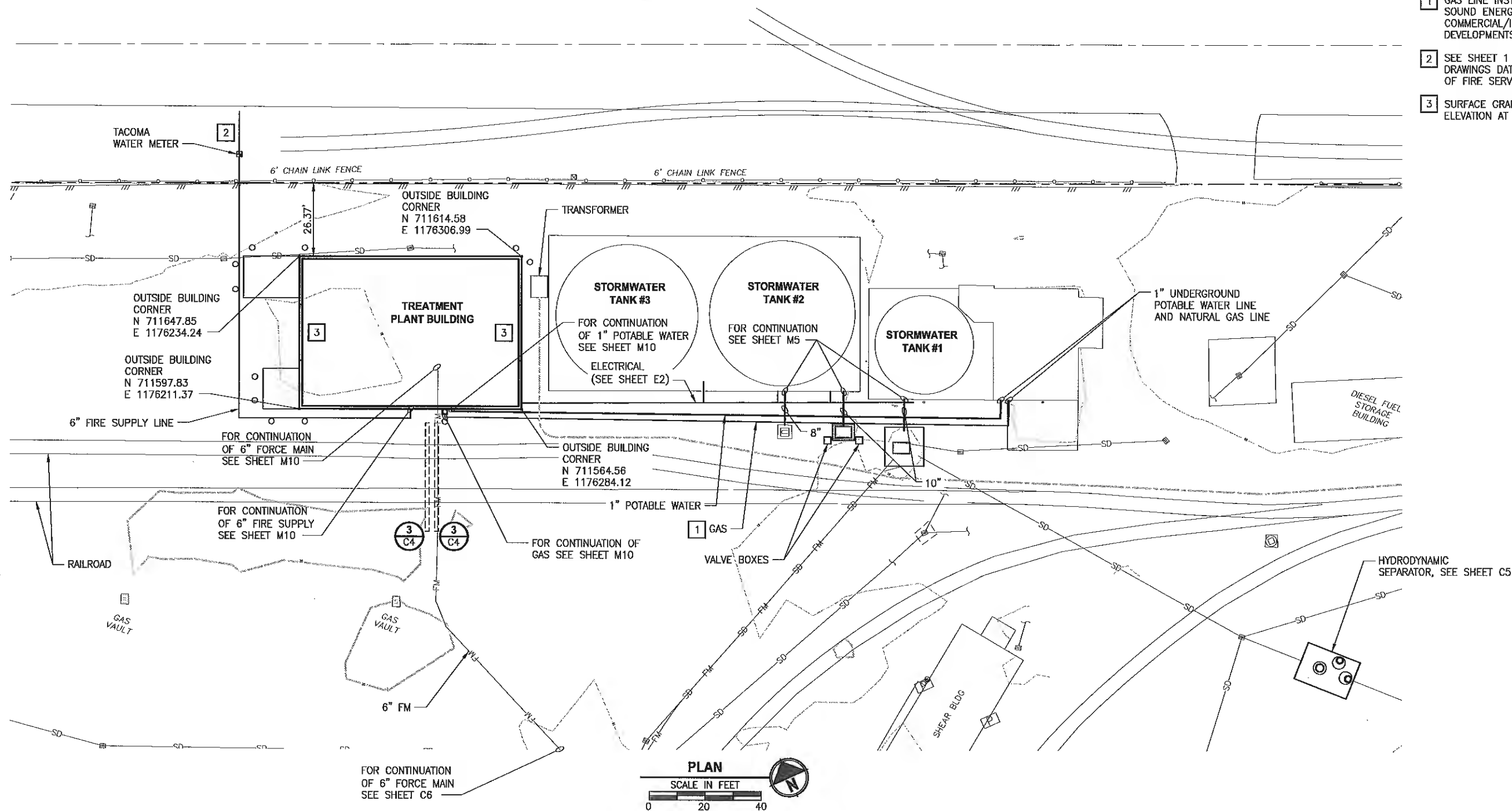
LEGEND, ABBREVIATIONS AND GENERAL NOTES
C1

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DATE: 08/26/12 BY: BTH

DRAWING NO. 2 OF 65
C1


KEYNOTES:

- 1 GAS LINE INSTALLED IN ACCORDANCE WITH THE PUGET SOUND ENERGY GAS SERVICE HAND BOOK FOR COMMERCIAL/INDUSTRIAL AND MULTI FAMILY DEVELOPMENTS DATED MARCH 2010.
- 2 SEE SHEET 1 OF 2 OF SMITH FIRE SYSTEMS, INC. DRAWINGS DATED 9/13/11 FOR INSTALLATION DETAILS OF FIRE SERVICE LINE.
- 3 SURFACE GRADED TO MATCH FINISHED FLOOR ELEVATION AT OVERHEAD ROLL-UP DOORS.



PLAN

SCALE IN FEET



0 20 40

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PROJECT NAME

SCHNITZER STEEL STORMWATER IMPROVEMENTS

TACOMA, WASHINGTON

TREATMENT PLANT AREA SITE PLAN


DRAWING NO.
4 OF 65

C3

**REVISED TO CONFORM WITH
CONSTRUCTION RECORDS**

DATE: 08/26/12 BY: BTH

[illegible]

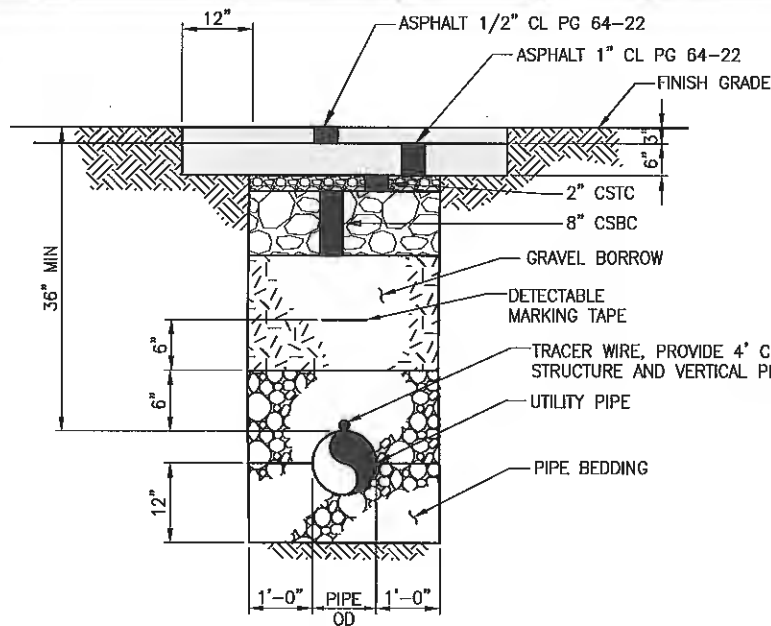
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	REVISIONS	DATE	BY
			DESIGNED B. HARDY
			DRAWN S. RASMUSSEN
			CHECKED
			APPROVED

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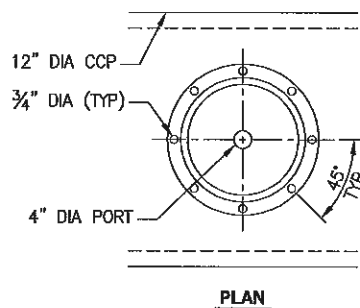
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JOB No.	273-3312-004
DATE	OCTOBER 2012

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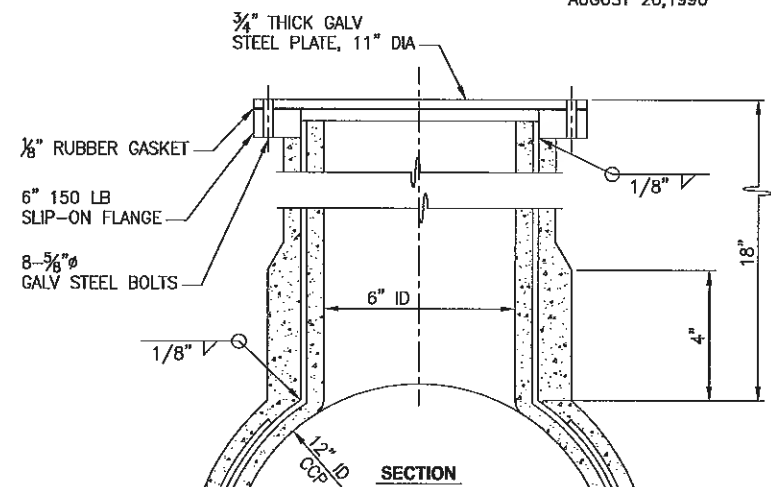
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PLOTTED BY: rasmuste LAYOUT: C3



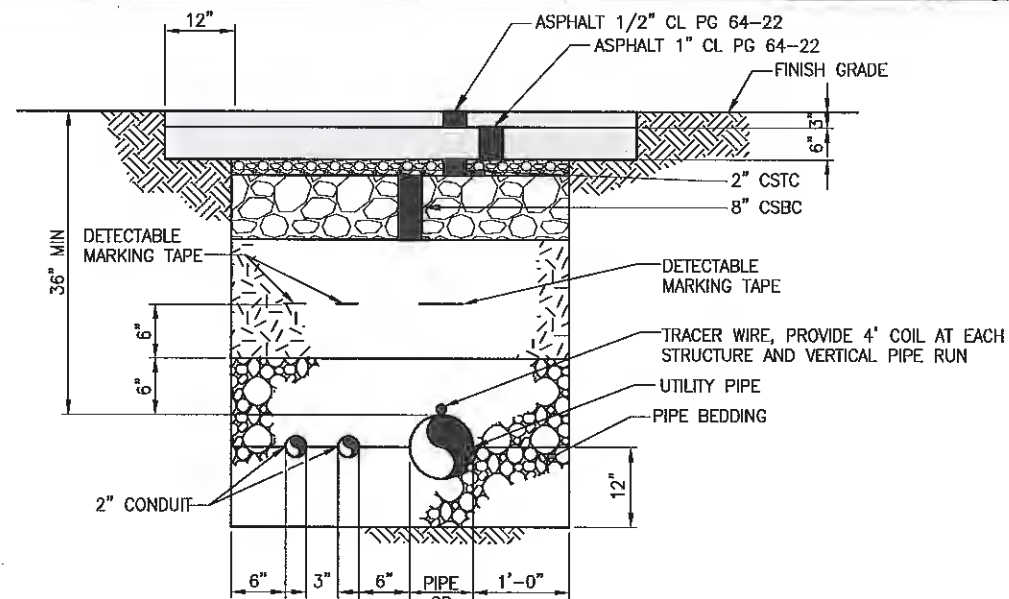
**TYPICAL UTILITY PIPE TRENCH
DETAIL 1**
NO SCALE TYP



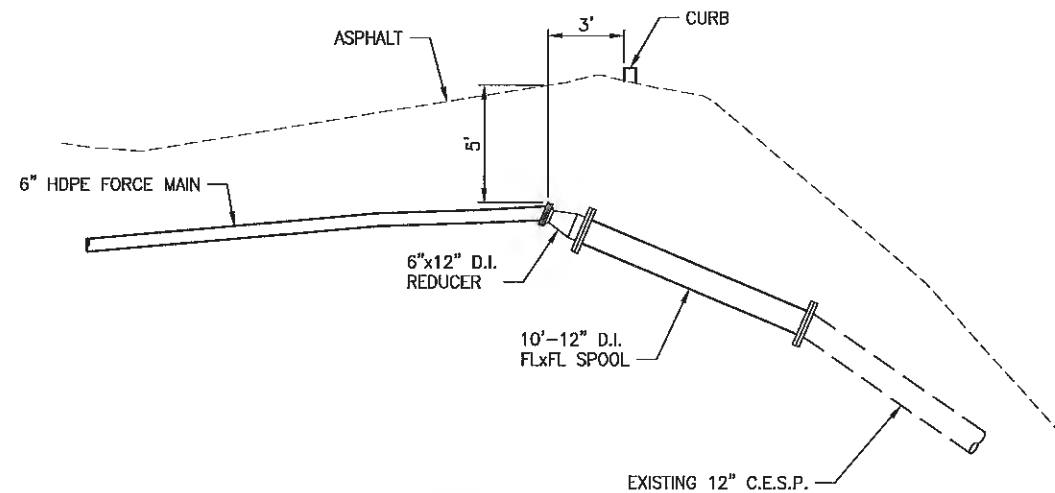
PLAN



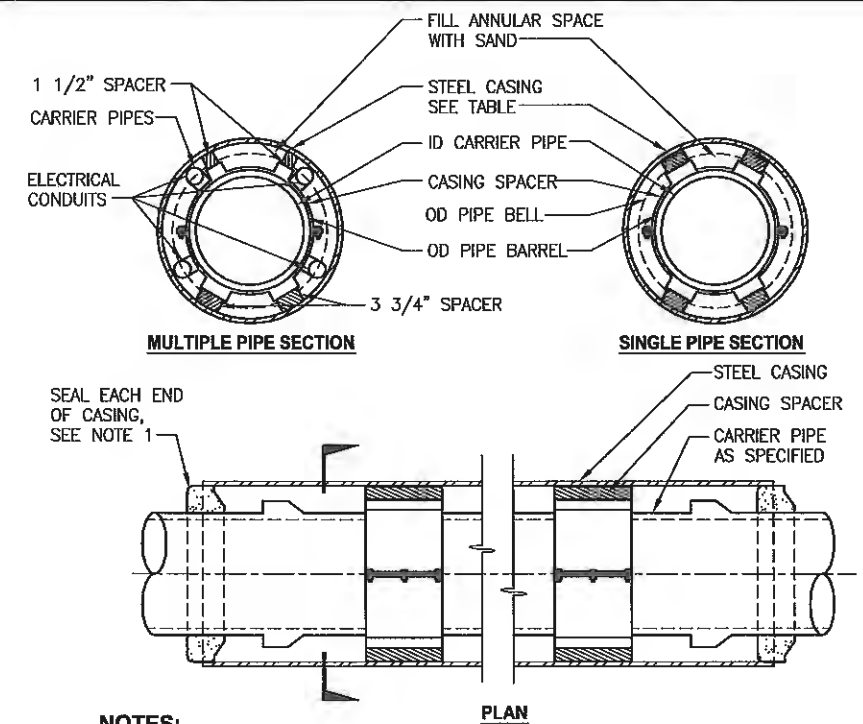
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DETAIL 4**
NO SCALE



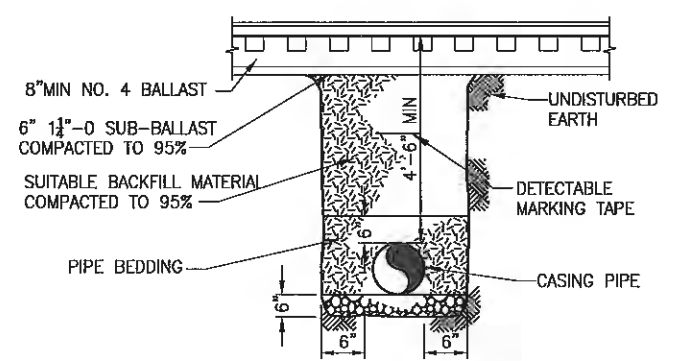
**TYPICAL UTILITY AND CONDUIT TRENCH
DETAIL 2**
NO SCALE TYP



**FORCE MAIN TIE IN
DETAIL 5**
NO SCALE C6



**RAILROAD CROSSING CASINGS
DETAIL 3**
NO SCALE TYP



**RAILROAD CROSSING PIPE TRENCH AND RESTORATION
SECTION 1**
NO SCALE TYP

NOTES:

1. SEAL ENDS OF CASING WITH CASCADE STYLE CCES END SEAL OR EQUAL.
2. CASCADE CASING SPACERS OR APPROVED EQUAL.
3. PLACE A SPACER WITHIN 2' OF EACH END OF THE CASING PIPE.

CASING LENGTH (FT)	BEGINNING STATION	END STATION	CARRIER PIPE	CASING OUTSIDE DIAMETER	MINIMUM CASING THICKNESS	SPACER INTERVAL
39	1+20	1+59	6" HDPE	16"	0.219"	5'
39	1+20	1+59	SPARE	16"	0.219"	---



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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

**TREATMENT PLANT AREA
DETAILS**

DRAWING NO.
5 OF 65
C4

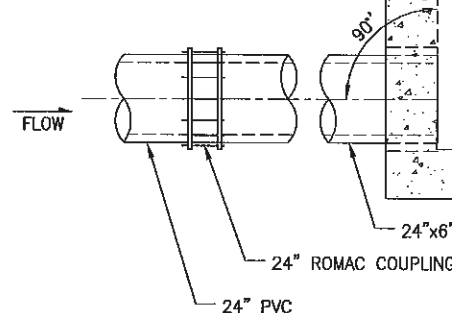
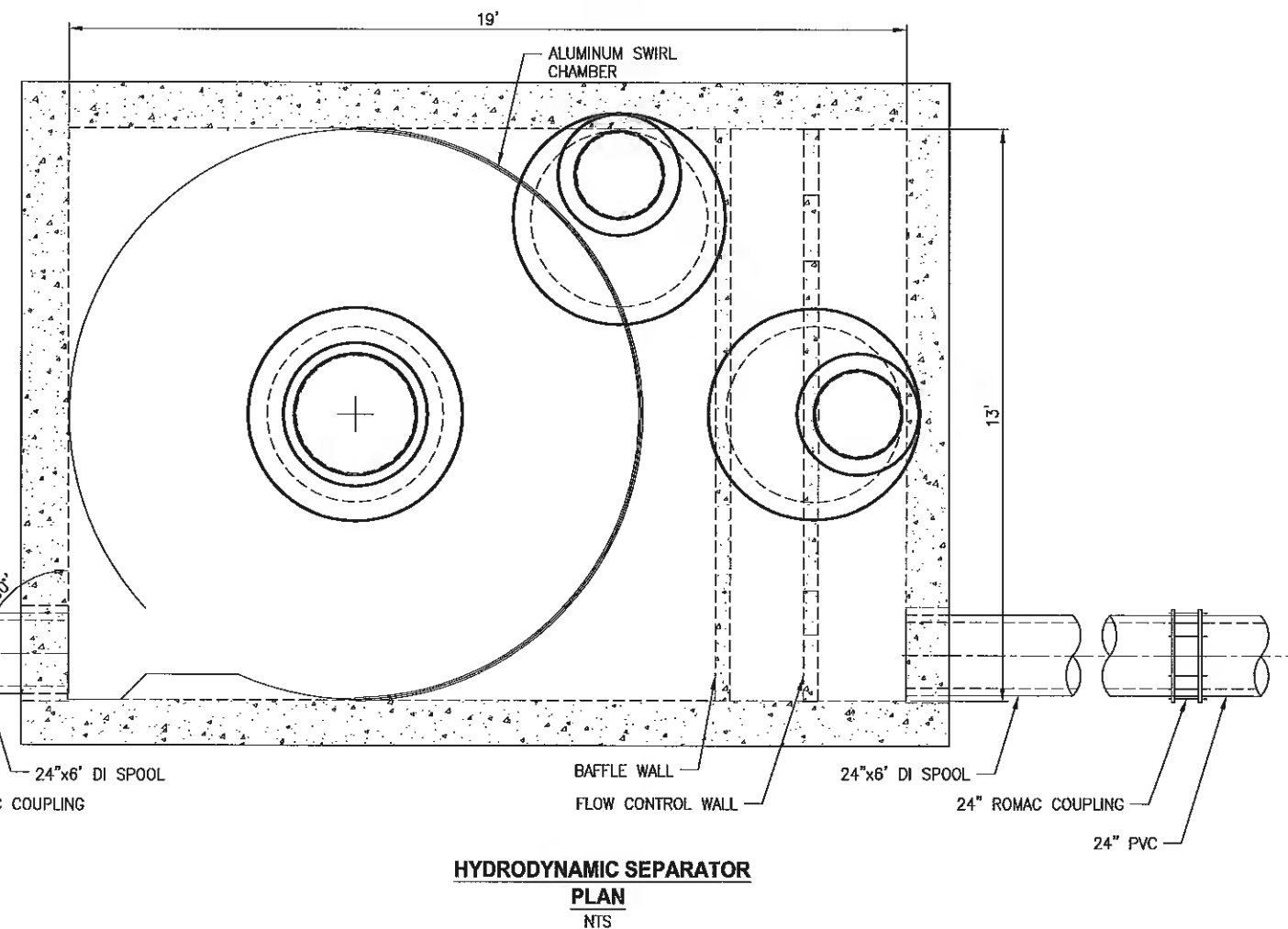
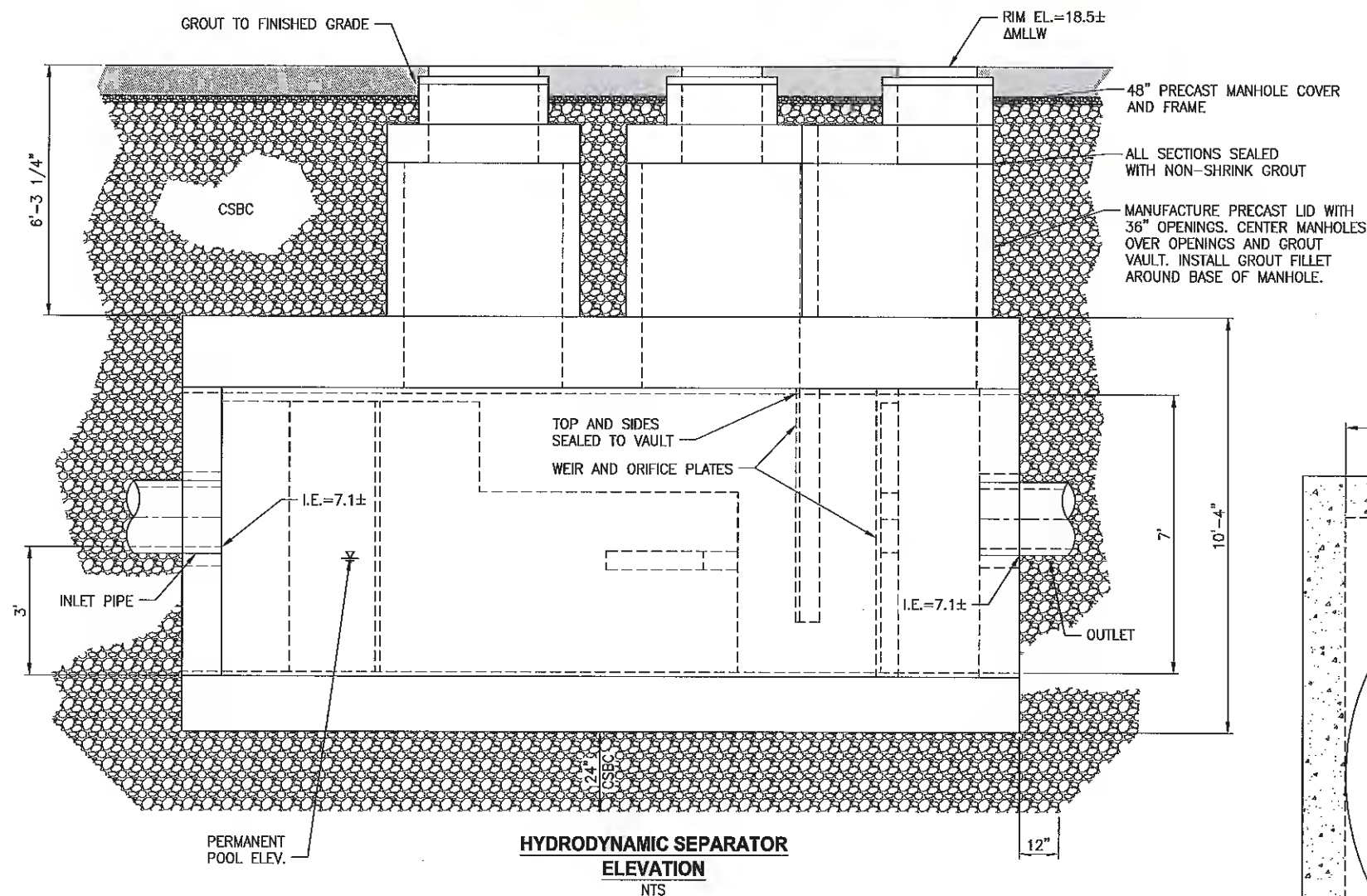
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DATE: 08/26/12 BY: BTH

DATE: Oct 09, 2012 2:07pm
PLOTED BY: reformat LAYOUT: C4
XREF'S: XBR3312002027048A-SV | XBR3312002-BA | XBR3312002-DE | BTH-PE WA | XBR3312004-TB

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REVISIONS	DATE	BY	DESIGNED
			B. HARDY
			S. RASMUSSEN
			CHECKED
			APPROVED

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FILE NAME
BR3312002 C-04
JOB No.
273-3312-004
DATE
OCTOBER 2012



GENERAL NOTES:

1. INLET PIPE(S) PERPENDICULAR TO THE VAULT AND AT THE CORNER TO INTRODUCE THE FLOW TANGENTIALLY TO THE SWIRL CHAMBER.
2. STRUCTURES, MANHOLES, AND MANHOLE LIDS DESIGNED IN ACCORDANCE WITH HEAVY VEHICLE LOADING DESCRIBED IN SECTION 03400.

**HYDRODYNAMIC SEPARATOR
DETAIL**
NO SCALE 1 TYP

**HYDRODYNAMIC SEPARATOR
PLAN**
NTS



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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

HYDRODYNAMIC SEPARATOR PLAN, PROFILE AND DETAILS

DRAWING NO.
6 OF 65
C5

**REVISED TO CONFORM WITH
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DATE: 08/26/12 BY: BTH

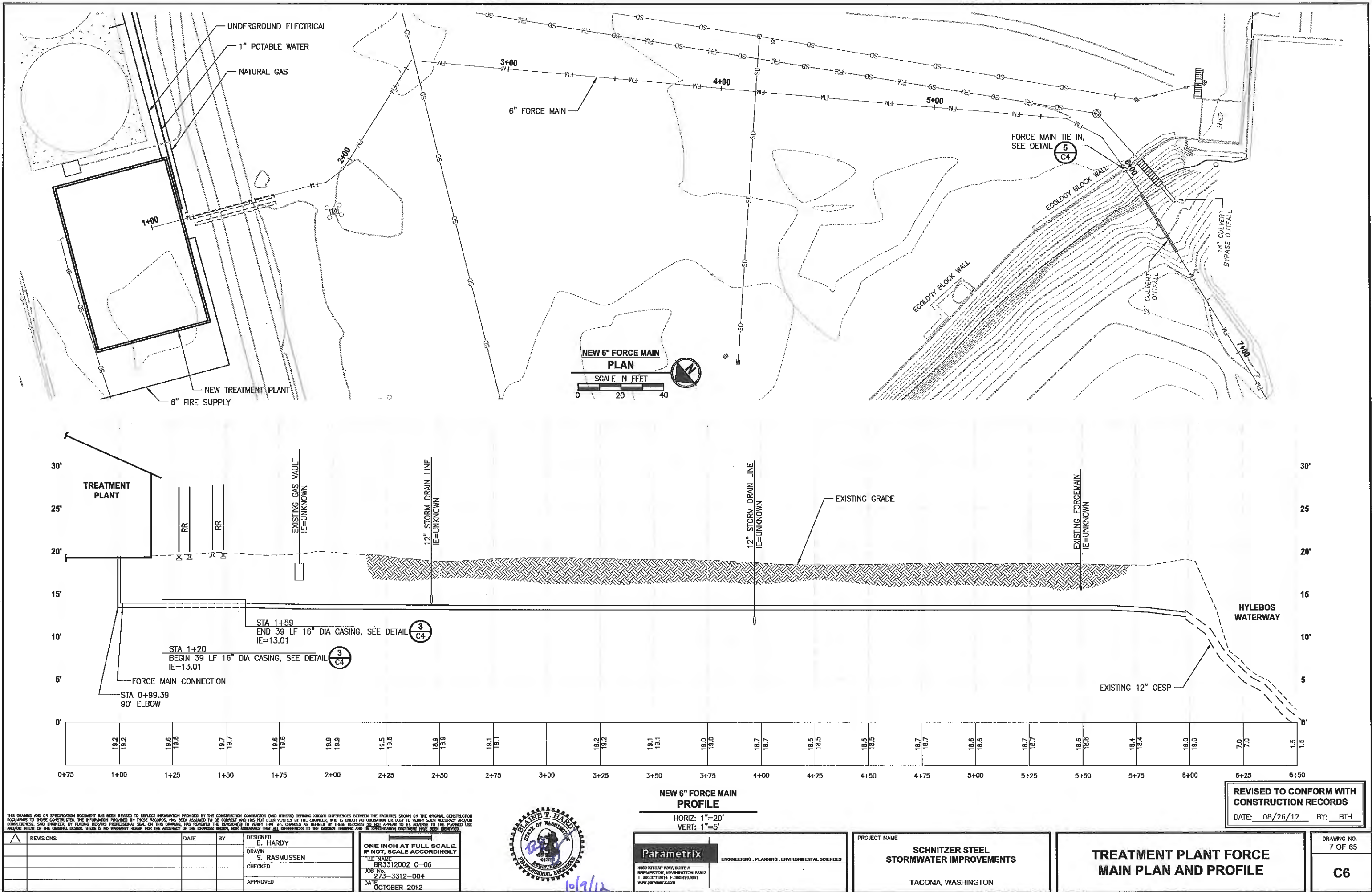
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REVISIONS	DATE	BY	DESIGNED
			B. HARDY
			S. RASMUSSEN
			CHECKED
			APPROVED

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IF NOT, SCALE ACCORDINGLY
FILE NAME
BR3312002 C-05
JOB NO.
273-3312-004
DATE
OCTOBER 2012

DATE: Oct 09, 2012 - 2:08PM
PLOTTER: BY: rasmussen
LAYOUT: C5
XREFS: XBR3312004-TB | BTH-PE WA

DATE: 04-05-2012 2:08PM
DRAWN BY: S. RASMUSSEN
CHECKED BY: S. RASMUSSEN
DESIGNED BY: B. HARDY
PROJECT: C6
SHEET: 7 OF 85
TREATMENT PLANT FORCE MAIN PLAN AND PROFILE
C6



File: S1275331202-51.dwg Plot Date: Friday, October 05, 2012 14:46:38 PM

ABBREVIATIONS

ALT	ALTERNATE	JT	JOINT
AB	ANCHOR BOLT	LOCN	LOCATION
ADH	ADHESIVE	LONG	LONGITUDINAL
APPD	APPROVED	LLH	LONG LEG HORIZONTAL
APPROX	APPROXIMATE	LLV	LONG LEG VERTICAL
AC	ASPHALTIC CONCRETE	LP	LOW POINT
AL	ALUMINUM	MB	MACHINE BOLT
@	AT	MK	MARK
B/B	BACK TO BACK	MAX	MAXIMUM
BM	BEAM OR BENCH MARK	MS	MILD STEEL
BLKG	BLOCKING	MIN	MINIMUM
BOT	BOTTOM	MISC	MISCELLANEOUS
BLDG	BUILDING	MC	MOMENT CONNECTION
C	CHANNEL	NF	NEAR FACE
CH'D	CHECKERED	NS	NEAR SIDE
CIP	CAST IN PLACE	NOM	NOMINAL
CTR	CENTER	NIC	NOT IN CONTRACT
CLR	CLEAR	NTS	NOT TO SCALE
C/C	CENTER TO CENTER	NO OR #	NUMBER
CL	CLEAR/CLEARANCE	OC	ON CENTER
COL	COLUMN	OPNG	OPENING
CONC	CONCRETE	OPP	OPPOSITE
CMU	CONCRETE MASONRY UNIT	OD	OUTSIDE DIAMETER
CONN	CONNECTION, CONNECT	O/O	OUT TO OUT
CONST	CONSTRUCTION	OA	OVERALL
CNJ	CONSTRUCTION JOINT	OH, O/H	OVERHEAD
CJ	CONTROL JOINT	O.S.	OUTSIDE
CONT	CONTINUOUS	PERP	PERPENDICULAR
DET	DETAIL	PL	PLATE
DIA	DIAMETER	PWD	PLYWOOD
DIM	DIMENSION	PC	PIECE OF
DO	DITTO	PCC	PRECAST CONCRETE
DBL	DOUBLE	PREFAB	PREFABRICATED
DN	DOWN	PROJ	PROJECTION, PROJECT
DWG	DRAWING	PSF	POUNDS PER SQUARE FOOT
EA	EACH	PSI	POUNDS PER SQUARE INCH
EF	EACH FACE	PT	PRESSURE TREATED
ES	EACH SIDE	R	RISER
EW	EACH WAY	RCP	REINFORCED CONCRETE PIPE
EL OR ELEV	ELEVATION	REF	REFERENCE
EMBD	EMBEDDED/EMBEDMENT	REINF	REINFORCING/REINFORCE
ENGR	ENGINEER	REQD	REQUIRED
= OR EQ	EQUAL	REV	REVISION
EXIST	EXISTING	RO	ROUGH OPENING
EJ	EXPANSION JOINT	SCH	SCHEDULE
EPS	EXPANDED POLYSTYRENE	SECT	SECTION
EXT	EXTERNAL/EXTERIOR	SIM	SIMILAR
FAB	FABRICATE	SOG	SLAB ON GRADE
FOS	FACE OF STUDS	SLV	SLEEVE
FOW	FACE OF WALL	SPCS	SPACES
F/F	FACE TO FACE	SPEC	SPECIFICATION, SPECIFY
F/G	FIBERGLASS	SQ	SQUARE
FS	FAR SIDE	STGD	STAGGERED
FIN	FINISH/FINISHED	SS	STAINLESS STEEL
FLG	FLANGE	STD	STANDARD
FL	FLOOR	STL	STEEL
FD	FLOOR DRAIN	STIFF	STIFFENER
FH	FLAT HEAD	STRUCT	STRUCTURAL
FO	FLOOR OPENING	T	TREADS
FT OR	FEET	THK	THICK
FTG	FOOTING	T&B	TOP & BOTTOM
FND	FOUNDATION	T&G	TONGUE AND GROOVE
GALV	GALVANIZED	TOC	TOP OF CONCRETE
GA	GAUGE	TOG	TOP OF GRATING
GLB	GLULAM BEAM	TOS	TOP OF STEEL
GWB	GYPSUM WALL BOARD	TOW	TOP OF WALL
HDW	HARDWARE	TR	TREATED
HP	HIGH POINT	TYP	TYPICAL
H OR HORIZ	HORIZONTAL	U/S	UNDERSIDE
HSS	HOLLOW STRUCTURAL SHAPE	UNO	UNLESS NOTED OTHERWISE
IN OR "	INCH	V OR VERT	VERTICAL
INCL	INCLUDED/INCLUDING	WSHR	WASHER
ID	INSIDE DIAMETER	W/	WITH
INTER	INTERMEDIATE	WP	WORK POINT
INT	INTERNAL/INTERIOR	WS	WATER STOP
LS.	INSIDE	WWF	WELDED WIRE FABRIC

DESIGN CRITERIA

APPLICABLE BUILDING CODES
INTERNATIONAL BUILDING CODE, IBC 2009 EDITION
WITH WASHINGTON STATE AND CITY OF TACOMA AMENDMENTS

CODE ANALYSIS, TREATMENT BUILDING
OCCUPANCY: H4 (>500GAL CORROSIVES)
FLOOR AREA: 4400 SQ FT, (19,500 ALLOWED W/SPRINKLER INCREASE)
CONSTRUCTION TYPE: V-B
AUTOMATIC SPRINKLER SYSTEM PROVIDED
FUNCTION OF SPACE = MECHANICAL EQUIPMENT ROOM
OCCUPANT LOAD = 15

STRUCTURAL DESIGN LOADS

FOR ALL LOADS, IMPORTANCE FACTORS = 1.0.
FOR ASCE 7 OCCUPANCY CATEGORY II.

LIVE LOADS (UNLESS NOTED)
BUILDING FLOORS.....300 PSF
ELECTRICAL ROOM CEILING.....50 PSF

ROOF

MINIMUM DEAD LOAD.....10 PSF
COLLATERAL LOAD AT CEILINGS.....10 PSF
SNOW LOAD/LIVE LOAD.....25 PSF

WIND LOADS

BASIC WIND SPEED.....85 MPH
EXPOSURE.....C
TOPOGRAPHIC FACTOR Kzt.....2.0
ENCLOSED BLDG GCpl.....0.18
COMPONENT & CLADDING LOAD.....-28 PSF

SEISMIC LOADS

SITE CLASS = D
Ss = 1.21, S1 = 0.42
Fa = 1.02 Fv = 1.58
Sps = 0.82 Spt = 0.44
SEISMIC DESIGN CATEGORY = D

BUILDING SEISMIC FORCE RESISTING SYSTEMS =
AS DESIGNED BY METAL BUILDING MANUFACTURER

FOUNDATIONS

BASED ON:
"GEOTECHNICAL ENGINEERING REPORT TREATMENT PLANT BUILDING, TACOMA, WA" BY AMEC
EARTH & ENVIRONMENTAL, INC. JULY 28, 2010.

SOIL BEARING PRESSURE, NEW STRUCTURAL FILL.....2500 PSF

CONTINUOUS INSPECTION OF FILL PLACED AND COMPACTED UNDER BUILDING SLAB AND
FOOTINGS REQUIRED BY AN APPROVED, INDEPENDENT TESTING AGENCY. FILL SHALL
CONFORM TO GEOTECHNICAL RECOMMENDATIONS AND SHALL BE COMPACTED TO 95% OF
THE MAXIMUM DRY DENSITY. FILL SHALL BE PLACED IN MAX. 8" LIFTS. DENSITY TESTS
SHALL BE TAKEN AT 5-FOOT INTERVALS AROUND THE PERIMETER OF THE PROPOSED
STRUCTURE AND AT 10 EVENLY SPACED LOCATIONS UNDER THE SLAB.

SPECIAL INSPECTION SCHEDULE

ITEM	CI	PI	REMARKS/REFERENCES
GENERAL:			
PREFABRICATED ITEMS		X	
SITE PREPARATION, FILL PLACEMENT, SOIL COMPACTION		X	BY GEOTECHNICAL ENGINEER OR AN APPROVED TESTING AGENCY
CONCRETE:			
REINFORCING MATERIALS		X	ASTM AS NOTED, ACI 318 7.1-7.4
REINFORCING PLACEMENT		X	ACI 318 7.5-7.8
WELDING - REINFORCING		X	AWS D1.4
ANCHOR RODS, EMBEDDED BOLTS & INSERTS	X		PRIOR TO AND DURING CONCRETE PLACEMENT
USE OF REQUIRED MIX DESIGN		X	
CONCRETE SLUMP, AIR CONTENT, TEMPERATURE & TEST SPECIMENS	X		WHILE MAKING SPECIMENS FOR STRENGTH TESTS, ACI 318 5.6
CONCRETE PLACEMENT	X		ACI 318 5.9, 5.10
CONCRETE CURING		X	ACI 318 5.11, 5.13
POST-INSTALLED ANCHORS			
GROUTED ANCHORS	X		
ADHESIVE ANCHORS	X		
MECHANICAL ANCHORS	X		
MASONRY:			
SITE-MIXED MORTAR & GROUT PROPORTIONS		NA	ACI 530.1 2.6A-B
ANCHOR TYPE, SIZE & LOCATION		NA	ACI 530.1 15.4, 2.1.2
SIZE, GRADE & TYPE OF REINFORCING		NA	ACI 530.1 2.4,3.4
PLACEMENT OF UNITS & CONSTRUCTION OF MORTAR JOINTS		NA	ACI 530.1 3.3B
PLACEMENT OF REINFORCING AND CONNECTORS		NA	ACI 530.1 3.4
GROUT SPACE		NA	ACI 530.1 3.2D
GROUT PLACEMENT	NA		ACI 530.1 3.5
TEST SPECIMEN PREPARATION	NA		ACI 530.1 1.4
HOT/COLD WEATHER CONSTRUCTIONS		NA	ACI 530.1 1.8
WOOD:			
TYPE & SPACING OF STRUCTURAL PANEL NAILING		NA	IBC 1707.3
TYPE & INSTALLATION OF TRUSS SEISMIC TIES		NA	
STEEL:			
MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS, AND WASHERS:		X	SECTION A3.4; AISC LRFD, SECTION A3.3
IDENTIFICATION TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.			
INSPECTION OF HIGH-STRENGTH BOLTING:		X	AISC LRFD SECTION M2.5
MATERIAL VERIFICATION OF STRUCTURAL STEEL:		X	ASTM A 6 OR ASTM A 568
IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.			
INSPECTION OF WELDING:			SHOP & FIELD
COMPLETE AND PARTIAL PENETRATION GROOVE WELDS.		X	AWS D1.1
SINGLE-PASS FILLET WELDS < 5/16"		X	AWS D1.1
INSPECTION OF STEEL FRAME JOINTS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS.		X	

INSPECTION SCHEDULE NOTES

- ITEMS MARKED WITH AN "X" REQUIRE INSPECTION BY A SPECIAL INSPECTOR APPROVED BY THE BUILDING OFFICIAL.
- ITEMS MARKED "NA" ARE NOT APPLICABLE TO THIS PROJECT.
- CI = CONTINUOUS INSPECTION DURING PROGRESS OF WORK BY SPECIAL INSPECTOR.
- PI = PERIODIC INSPECTION BY SPECIAL INSPECTOR AS REQUIRED TO CONFIRM CONFORMANCE OF WORK.
- TESTING AND INSPECTION REPORTS SHALL BE SUBMITTED TO THE ENGINEER, BUILDING OFFICIAL AND CONTRACTOR.
- OWNER WILL CONTRACT FOR SPECIAL INSPECTION SERVICES.

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			D. PETERSON
			CHECKED
			APPROVED

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PROJECT NAME

SCHNITZER STEEL
STORMWATER IMPROVEMENTS

TACOMA, WASHINGTON

ABBREVIATIONS, DESIGN PLAN AND
INSPECTIONS

DRAWING NO.
15 OF 72

S1

STRUCTURAL NOTES:

GENERAL REQUIREMENTS

REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR SIZE AND LOCATION OF RECESSES, DUCT OPENINGS, PIPING, CONDUITS, EQUIPMENT LOCATION AND ANCHORAGES, ETC., NOT SHOWN.

CONCRETE

ALL DETAILING, FABRICATION AND INSTALLATION OF REINFORCING BARS SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES ACI 315, LATEST EDITION.

CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, LATEST EDITION.

TOLERANCES SHALL CONFORM TO ACI 117, SECTIONS 1 THROUGH 6.

DESIGN STRENGTH
CAST-IN-PLACE CONCRETE, UNLESS OTHERWISE NOTED:
ALL CONCRETE.....f'c = 4000 PSI AT 28 DAYS

REINFORCING
REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615, GRADE 60.

REINFORCING STEEL FOR WELDED APPLICATIONS SHALL BE IN ACCORDANCE WITH ASTM A706, GRADE 60.

WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A185, fy = 65 KSI, FURNISHED IN FLAT SHEETS.

CONCRETE COVER
CONCRETE COVER FOR REINFORCING BARS, EXCEPT AS NOTED:
FOOTINGS AND MATS (CAST AGAINST SOIL).....3"
CONCRETE EXPOSED TO SOIL, WEATHER, OR CHEMICALS.....2"

PROVIDE 3/4" CHAMFER AT ALL EXPOSED EDGES AND OUTSIDE CORNERS.

ACCESSORY BARS
RIGIDLY SUPPORT BARS ON APPROVED ACCESSORIES. PROVIDE #4 RAISER BARS AT 36" ON CENTERS MAXIMUM TO SUPPORT TOP REINFORCING STEEL IN SLABS/MATS.

DOWELS AND CORNER BARS
ALL HORIZONTAL BARS SHALL BE CONTINUOUS AROUND CORNERS AND THROUGH PILASTERS. PROVIDE DOWELS AND CORNER BARS FOR ALL COLUMN AND WALL REINFORCEMENT, AT LEAST THE SAME SIZE AND SPACING AS BARS WITH WHICH THEY ARE LAPPED. LAP SPLICES AND EMBEDMENT SHALL BE PER ACI 318, OR AS NOTED. PROVIDE TWO ADDED VERTICAL BARS AT ALL WALL INTERSECTIONS.

OPENING REINFORCING (SLAB AND WALLS)
(FOR OPENINGS 12" WIDE AND OVER) ADD EDGE REINFORCING EQUAL IN AREA TO HALF OF BARS INTERRUPTED AT 3" ON CENTERS, EXTENDING 40 DIAMETERS PAST OPENING. ADD ONE #5 x 4'-0" DIAGONAL BAR AT EACH CORNER FOR EACH LAYER OF REINFORCEMENT, UNLESS NOTED OTHERWISE.

JOINTS
PROVIDE CONTINUOUS WATERSTOPS AT ALL BELOW GRADE JOINTS AND ALL JOINTS OF WATER CONTAINING STRUCTURES. ROUGHENED SURFACES AT JOINTS SHALL HAVE A SURFACE AMPLITUDE OF 1/4" MIN.

BAR SPLICES

REINFORCING STEEL LAP SPLICES SHALL BE PER TABLE SHOWN BELOW. THE LENGTH OF LAP SPLICE OF BARS OF DIFFERENT DIAMETERS SHALL BE BASED ON THE SMALLER DIAMETER. BAR SPLICES MAY ALSO BE MADE BY WELDING IN ACCORDANCE WITH AWS D1.4 WELDING CODE. WHERE REINFORCING BARS CANNOT BE DEVELOPED DUE TO THE LIMITED EXTENT OF THE CONCRETE STRUCTURE, THE BARS SHALL EXTEND AS FAR AS POSSIBLE AND END IN STANDARD HOOKS.

HOOKS ARE ACI 318 STANDARD UNLESS NOTED.

CAST IN PLACE ANCHOR BOLTS

ANCHOR BOLTS SHALL CONFORM TO ASTM A307 OR A36. (GALVANIZED UNLESS NOTED). EMBEDDED END TO HAVE SQUARE OR HEX HEAD OR 3 DIAMETER HOOK. MINIMUM EMBEDMENT SHALL BE 8 BOLT DIAMETERS.

DRILLED-IN EXPANSION BOLTS

EXPANSION BOLTS SHALL BE "KWIK BOLT TZ PER ICC ESR-1917" BY HILTI CORP., OR APPROVED EQUAL. CURRENT ICC-ES REPORT IS REQUIRED. MINIMUM SPACING SHALL BE 12 BOLT DIAMETERS AND MINIMUM EDGE DISTANCE 6 BOLT DIAMETERS UNLESS NOTED OTHERWISE. MINIMUM EMBEDMENT IN STRUCTURAL CONCRETE SHALL BE 7 BOLT DIAMETERS.

ALL POST-INSTALLED ANCHORS MUST BE APPROVED FOR USE IN CRACKED CONCRETE IN SEISMIC DESIGN CATEGORY D. SEE SPECIFIC ICC EVALUATION REPORT FOR LIMITATIONS OF USE AND INSTALLATION REQUIREMENTS INCLUDING TORQUE.

ADHESIVE ANCHORING SYSTEM

REINFORCING BARS AND RODS ANCHORED INTO EXISTING CONCRETE SHALL BE IN DRILLED HOLE WITH HILTI HIT-RE 500 SD PER ICC ESR-2322, OR APPROVED EQUAL. CURRENT ICC-ES REPORT IS REQUIRED. MINIMUM EMBEDMENT IN STRUCTURAL CONCRETE SHALL BE 8 BOLT DIAMETERS. MINIMUM EDGE DISTANCE 6 BOLT DIAMETERS.

STEEL REINFORCING LAP SCHEDULE

BAR SIZE	CONCRETE	MASONRY
	f'c = 4,000 OR 5,000 PSI	f'm = 1,500 PSI
#3	19"	16"
#4	25"	21"
#5	31"	26"
#6	37"	43"
#7	48"	60"
#8	55"	92"
#9	62"	NA
#10	69"	NA

MINIMUM LAP SPLICES UNLESS OTHERWISE DETAILED ON DRAWINGS

STRUCTURAL & MISCELLANEOUS STEEL

MATERIAL:

STRUCTURAL SHAPES SHALL CONFORM TO ASTM A992 (A572/50).
PLATES SHALL CONFORM TO ASTM A36.
TUBES (HSS) SHALL CONFORM TO ASTM A500, GRADE B OR C.
PIPES SHALL CONFORM TO ASTM A53, GRADE B.

BOLTED CONNECTIONS:

BOLTS SHALL CONFORM TO ASTM A325, BEARING TYPE N UNLESS NOTED.

ALL CONNECTIONS NOT SPECIFICALLY DETAILED SHALL CONFORM TO THE FOLLOWING:

- BEAM END CONNECTIONS SHALL USE 2 VERTICAL ROWS OF BOLTS.
- MINIMUM THICKNESS OF GUSSET PLATES, BEAM END PLATES OR CONNECTION ANGLES SHALL BE 3/8".
- THE MINIMUM CONNECTION SHALL CONSIST OF 2 BOLTS.

MACHINE BOLTS SHALL BE ASTM A307 AND SHALL BE PROVIDED WITH LOCK WASHERS UNDER NUTS OR SELF LOCKING NUTS.

WELDING:

ALL WELDING SHALL CONFORM TO AWS D1.1 WELDING CODE. MINIMUM SIZE WELDS 3/16" CONTINUOUS FILLET.

STEEL LIGHT GAUGE FRAMING

FABRICATE TO DIMENSIONS & CONFIGURATIONS SHOWN ON DRAWINGS. SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.

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PROJECT NAME

SCHNITZER STEEL
STORMWATER IMPROVEMENTS

TACOMA, WASHINGTON

STRUCTURAL GENERAL NOTES

DRAWING NO.
16 OF 72

S2

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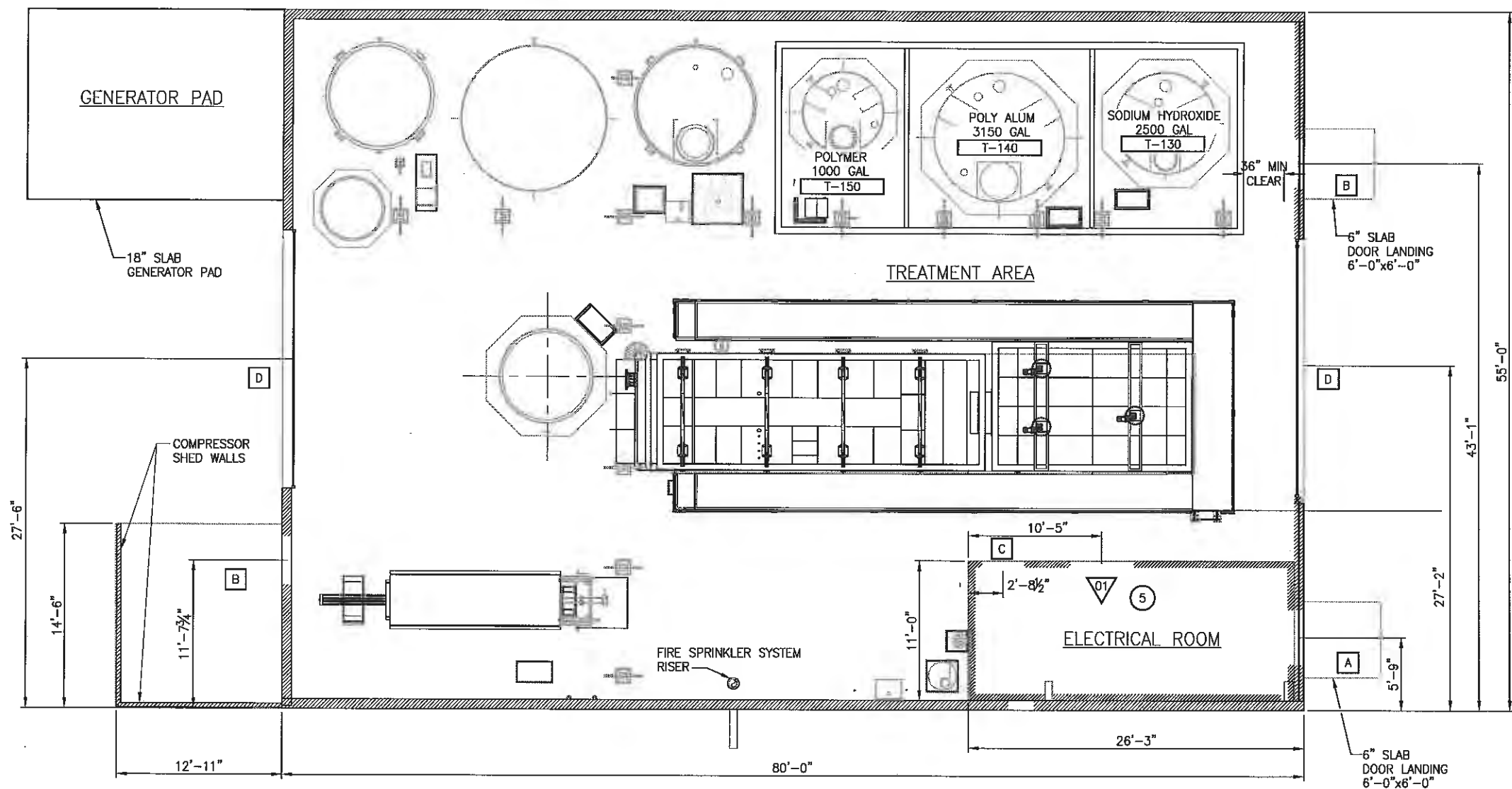


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PROJECT NAME
SCHNITZER STEEL
STORMWATER IMPROVEMENTS
TACOMA, WASHINGTON

TREATMENT BUILDING PLAN

DRAWING NO.
17 OF 72
S3



NOTES:

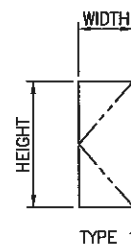
- SEE SHEET S1 FOR ADDITIONAL NOTES.
- SEE DETAIL 1 SHEET S7 FOR EQUIPMENT PAD CONSTRUCTION.
- BUILDING WILL BE PRE-ENGINEERED METAL. STRUCTURAL SYSTEM IS SHOWN FOR CONCEPTUAL PURPOSE ONLY.
- DIMENSIONS SHOWN ARE TO INSIDE FACE OF SIDING (FACE OF GERTS)
- CONTRACTOR SHALL INSTALL SIGNAGE NOTING "NO STORAGE" FOR CEILING OVER ELECTRICAL ROOM.

WINDOW SCHEDULE

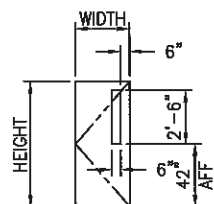
MARK	TYPE	WIDTH (IN)	HEIGHT (IN)	HEAD HEIGHT	FRAME MATERIAL	REMARKS
01	PICTURE	60	42	6'-8"	AL	SAFETY GLASS, WIRE REINFORCED

DOOR SCHEDULE

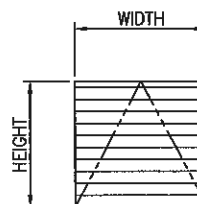
MARK	TYPE	WIDTH (IN)	HEIGHT (IN)	THK (IN)	MATERIAL	FRAME TYPE	FRAME MATERIAL	REMARKS
A	1	48	96	1 3/4"	HM	1	HM	INSULATED, PANIC HARDWARE
B	1	42	84	1 3/4"	HM	1	HM	INSULATED, PANIC HARDWARE
C	2	36	84	1 3/4"	HM	2	HM	NARROW LITE SINGLE DOOR, PANIC HARDWARE
D	3	240	240	-	METAL	3	METAL	INSULATED ROLL UP, MOTORIZED OPERATOR



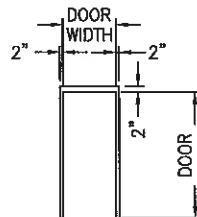
TYPE 1



TYPE 2



TYPE 3



TYPE 1&2
DOOR FRAME
DETAIL

SCALE : NONE

DOOR TYPES DETAIL

SCALE : NONE

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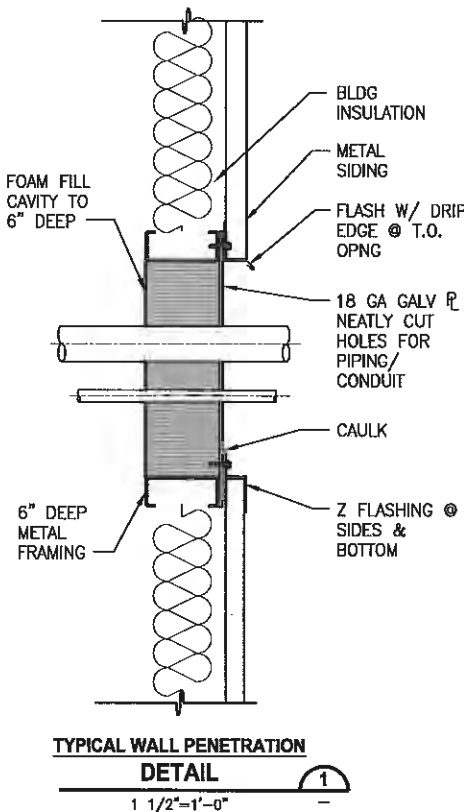
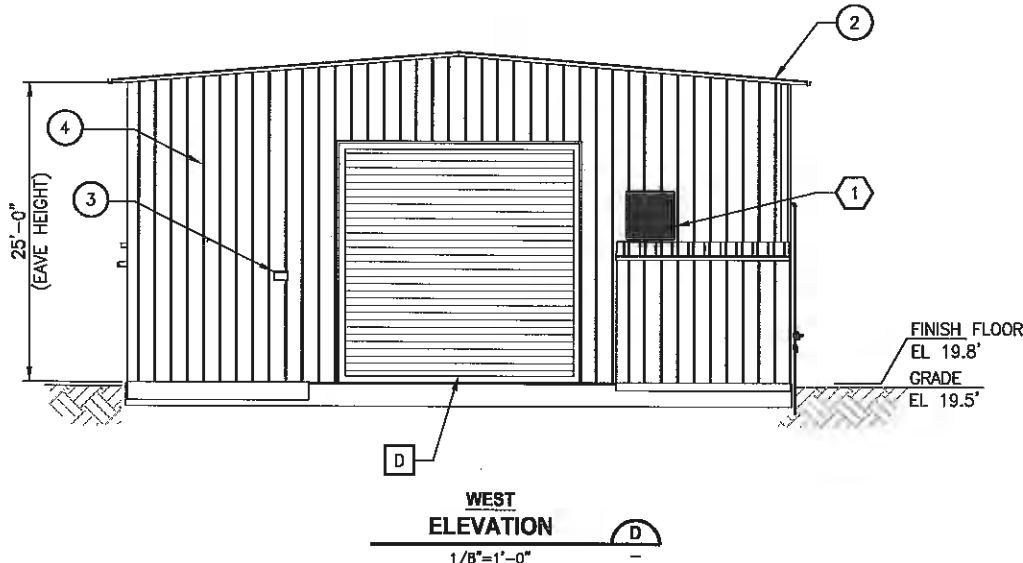
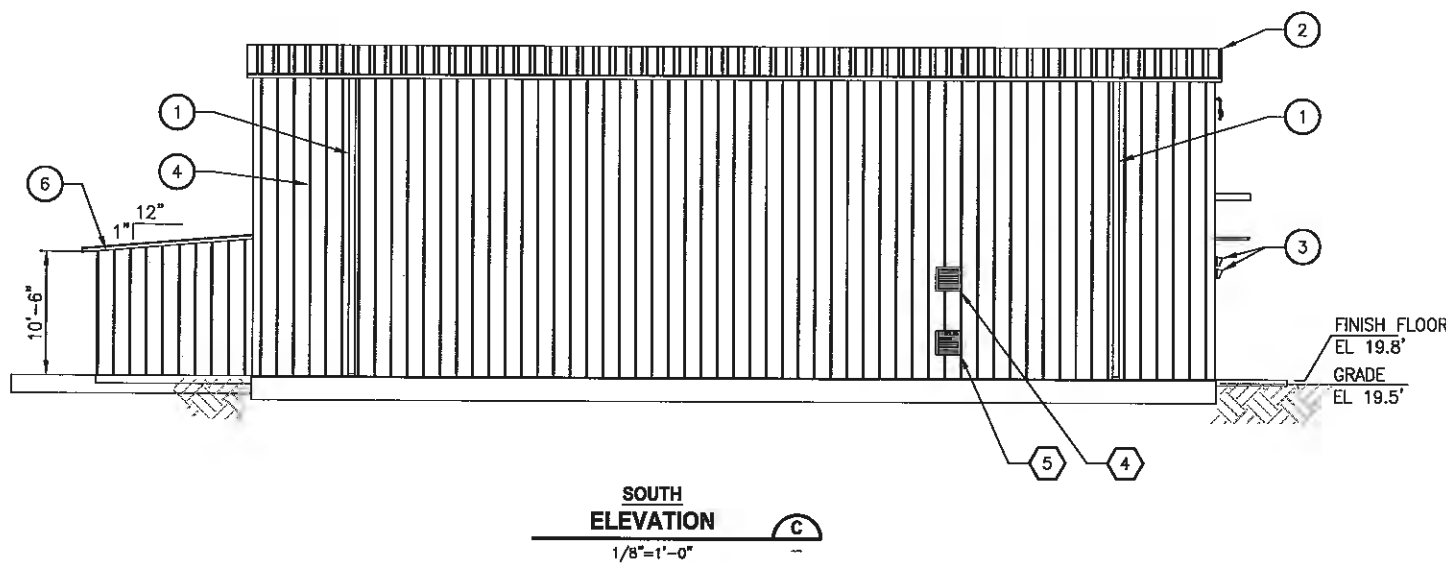
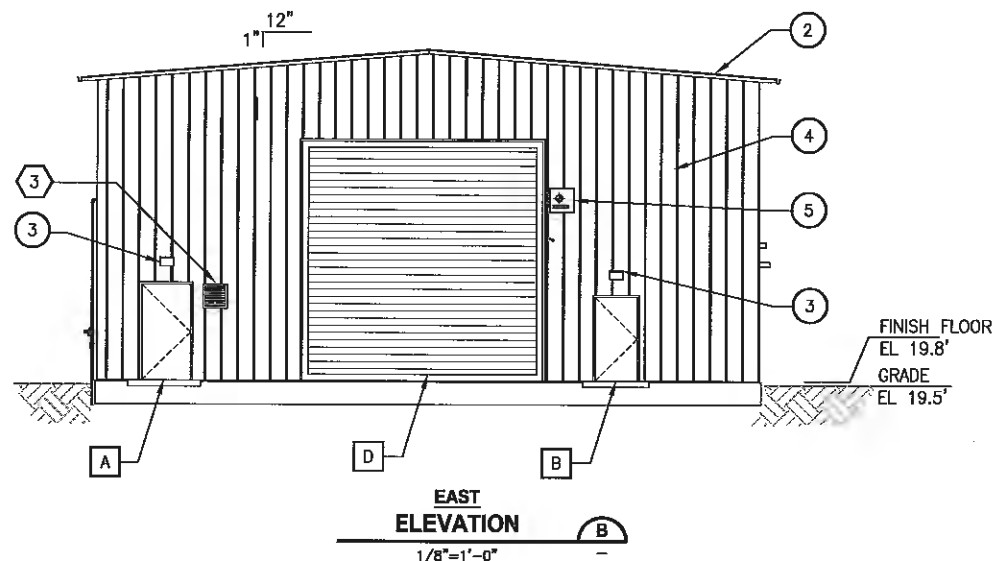
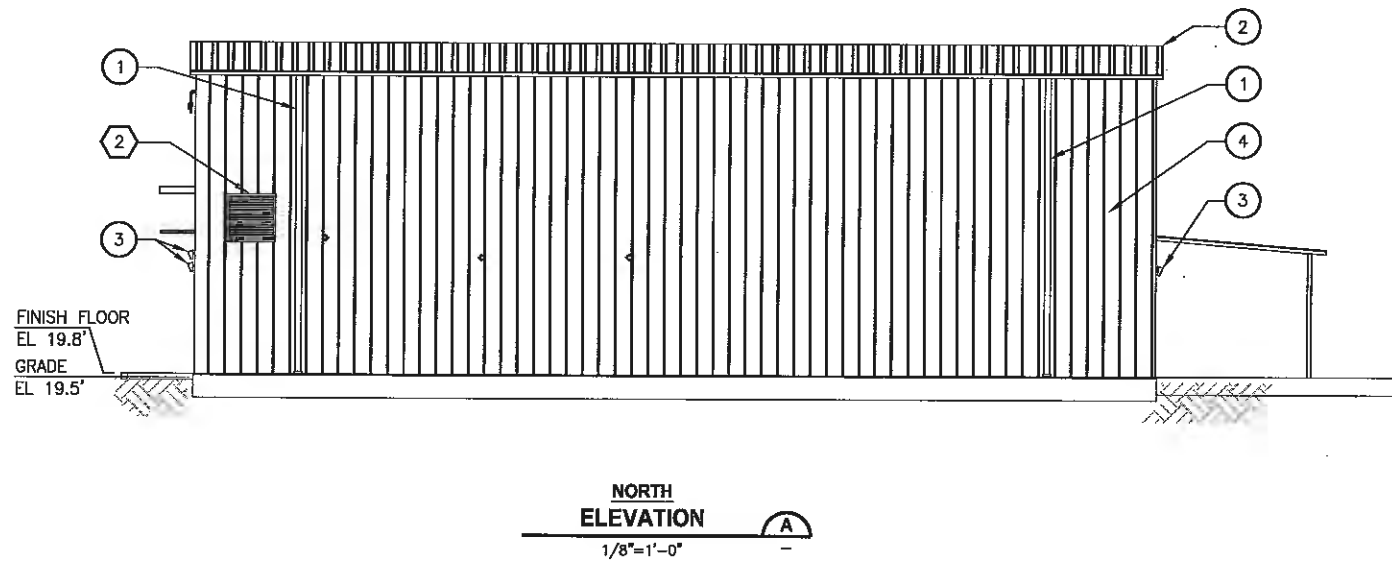
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NOTES:

1. FOR DOOR SCHEDULE SEE ☒ SHEET S3.
2. FOR LOUVER SCHEDULE SEE ☒ SHEET M18.
3. ALL ROOF DRAINS DRAIN TO SPLASH BLOCK (TYP)

ELEVATION KEY ITEMS:

- 1 METAL GUTTER AND DOWNSPOUTS
- 2 STANDING SEAM METAL ROOFING
- 3 LIGHT FIXTURE
- 4 METAL SIDING
- 5 WALL PENETRATION FOR CONDUIT AND PIPING. SEE DETAIL 1.
- 6 COMPRESSOR AREA PORTICO, TWO SIDED, UN-INSULATED. SIDING AND ROOFING SHALL CONFORM TO BUILDING



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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

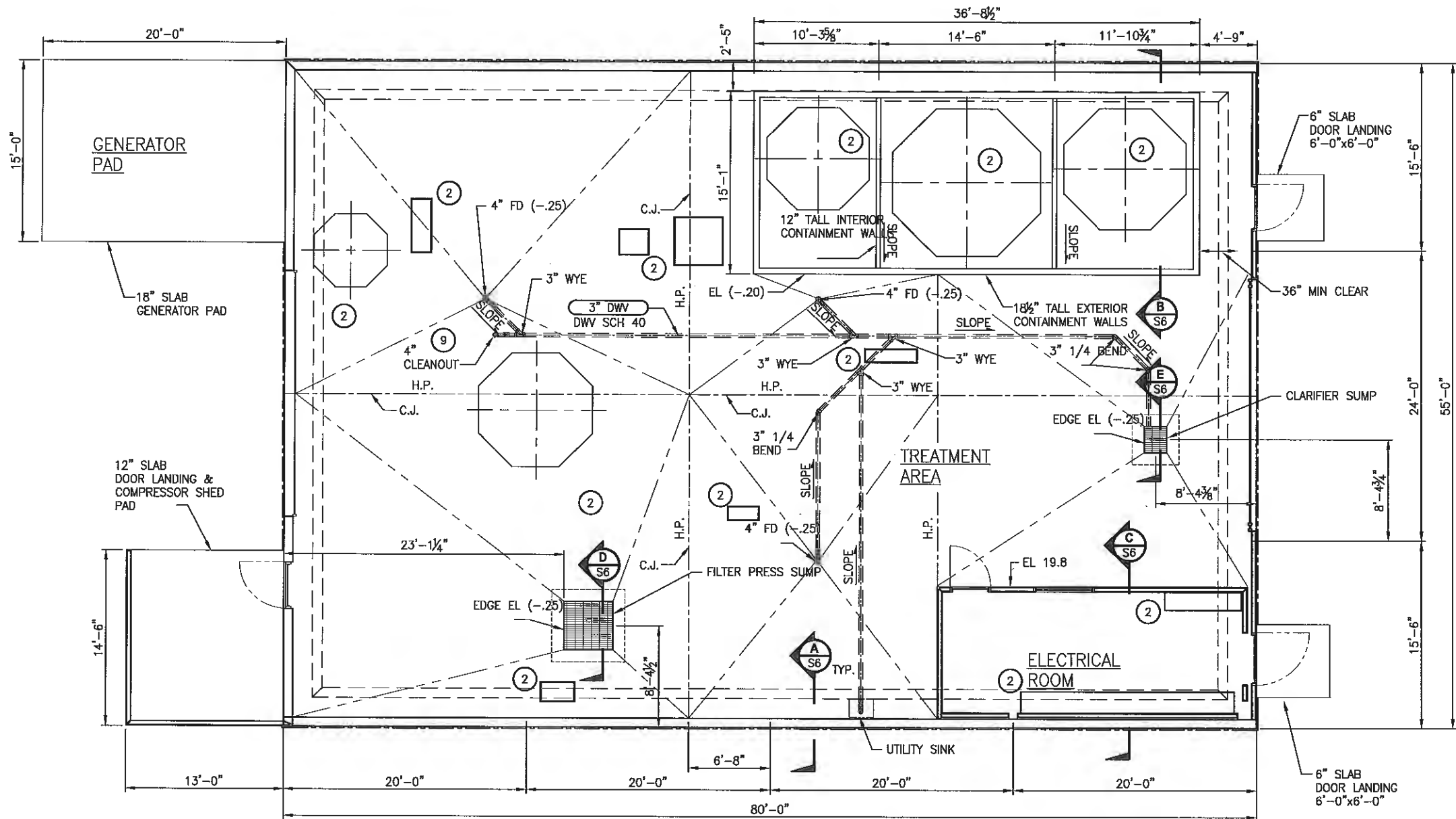
**TREATMENT BUILDING ELEVATIONS
AND DETAIL**

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DRAWING NO.
18 OF 72
S4

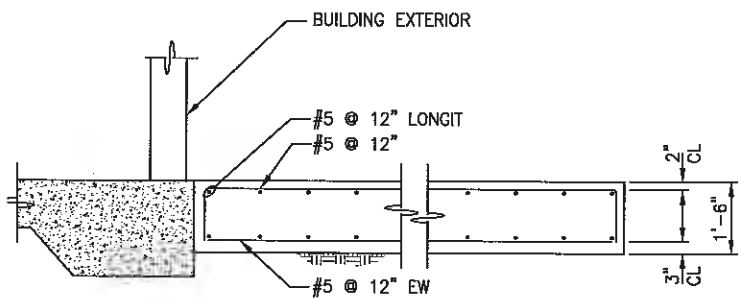
NOTES:

- SEE SHEET S1 FOR ADDITIONAL NOTES.
- EQUIPMENT HOUSEKEEPING PADS ARE SIZED PER EQUIPMENT.
- SEE DETAIL 1 SHEET S7 FOR EQUIPMENT PAD CONSTRUCTION.
- BUILDING PRE-ENGINEERED METAL STRUCTURAL SYSTEM IS SHOWN FOR CONCEPTUAL PURPOSE ONLY.
- DIMENSIONS SHOWN ARE TO INSIDE FACE OF SIDING (FACE OF GERTS).
- HIGH POINT (H.P.) SLAB TO BE ELEVATION 19.8', OTHER ELEVATIONS ARE NOTED + OR - FROM THIS ELEVATION. BUILDING PERIMETER ELEV. 19.8' ALL AROUND.
- SLOPE ALL FLOORS TO FLOOR DRAIN MIN 1% SLOPE.
- SLOPE ALL DRAIN PIPES MINIMUM OF 1/4" PER FOOT OR 2%.
- CLEANOUTS FURNISHED WITH A CAST IRON LID AND ABS HOUSING. JOSAM COMPANY SERIES 58580 OR EQUAL.
- FLOOR DRAIN SYSTEM DRAINS TO A BLIND SUMP. THE BLIND SUMP IS PUMPED TO THE INLET OF THE CLARIFIER. THE FLOOR DRAIN SYSTEM IS NOT CONNECTED TO THE SANITARY SEWER AND IS A CLOSED SYSTEM. VENTING, TRAPS, AND TRAP PRIMERS NOT INCLUDED NOR REQUIRED ON THE FLOOR DRAIN SYSTEM AND SINK BECAUSE THE SYSTEM IS NOT CONNECTED TO THE SANITARY SEWER AND THE BLIND SUMP WILL BE EMPTIED AS NECESSARY.



TREATMENT BUILDING FOUNDATION PLAN

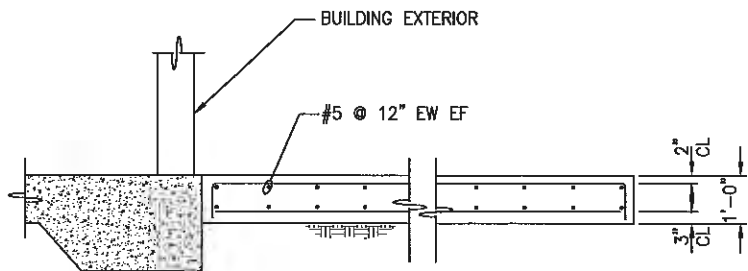
3/16"=1'-0"



GENERATOR FOUNDATION SECTION

1/2"=1'-0"

A



COMPRESSOR FOUNDATION SECTION

1/2"=1'-0"

B

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PROJECT NAME
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STORMWATER IMPROVEMENTS
TACOMA, WASHINGTON

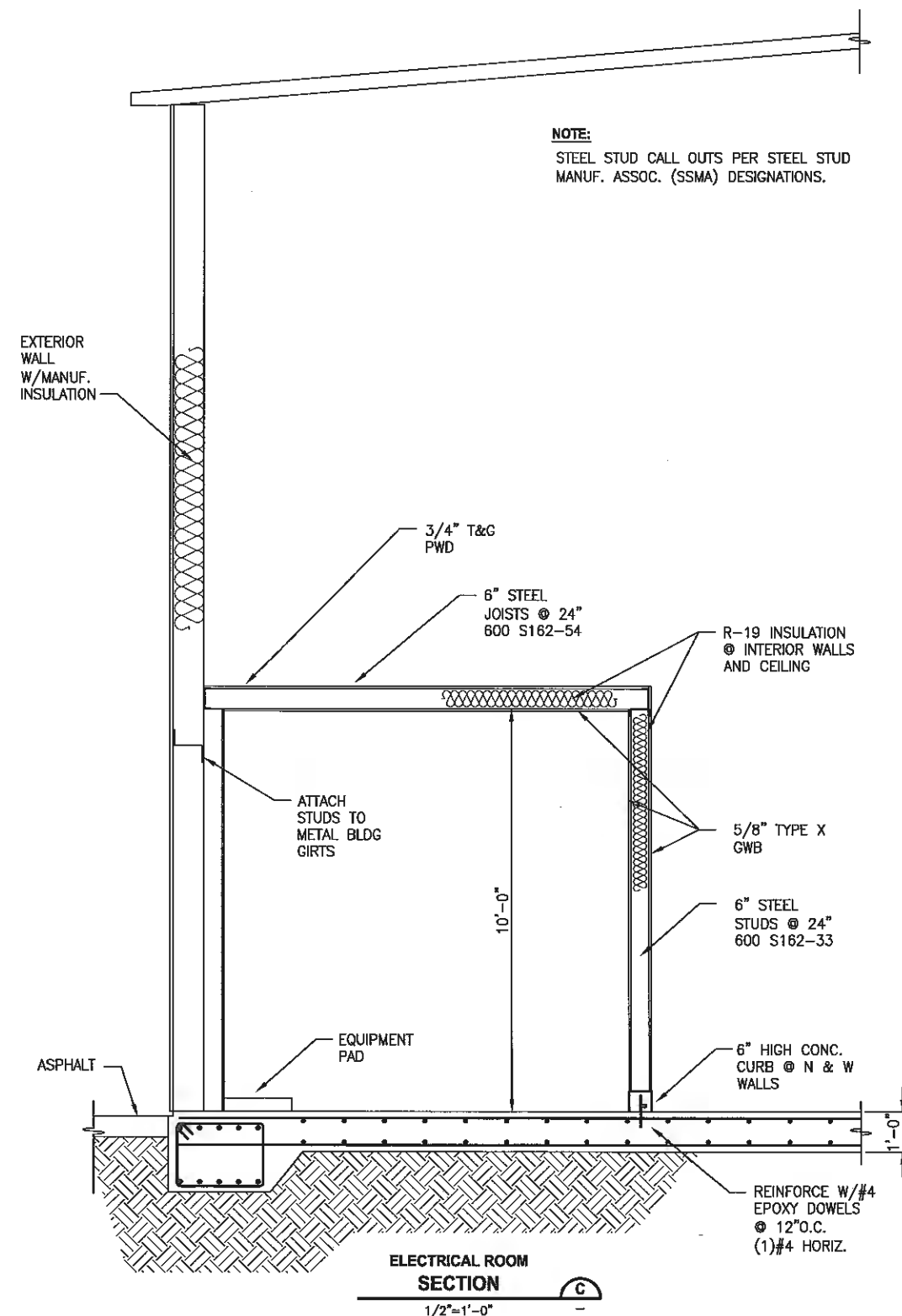
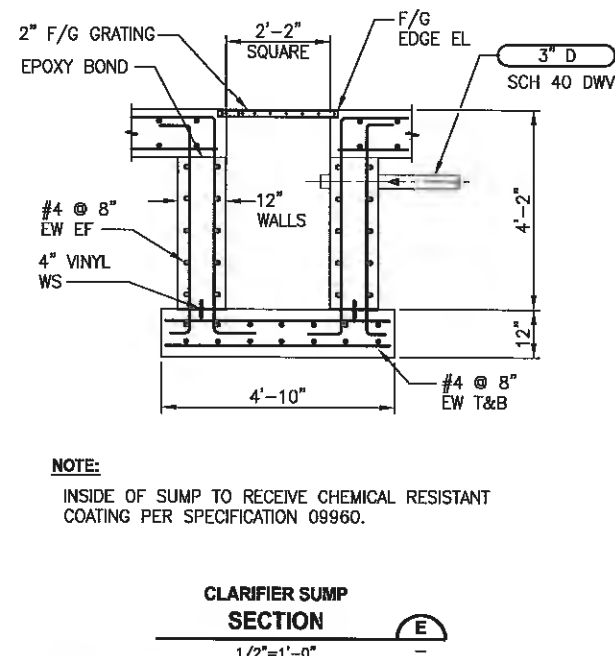
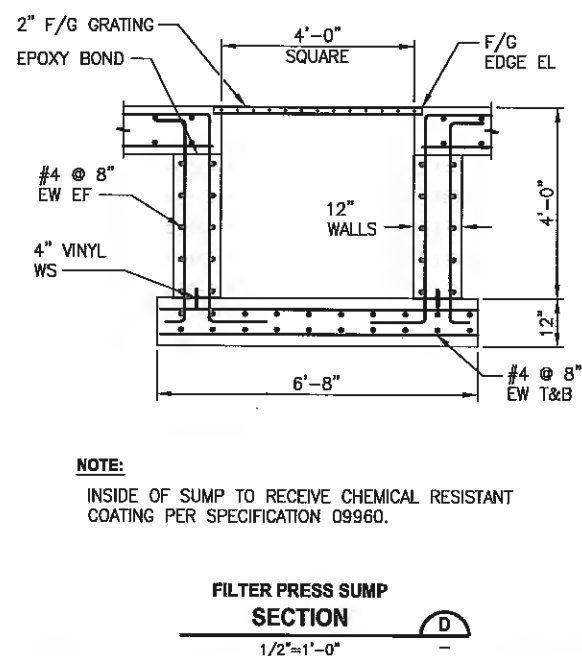
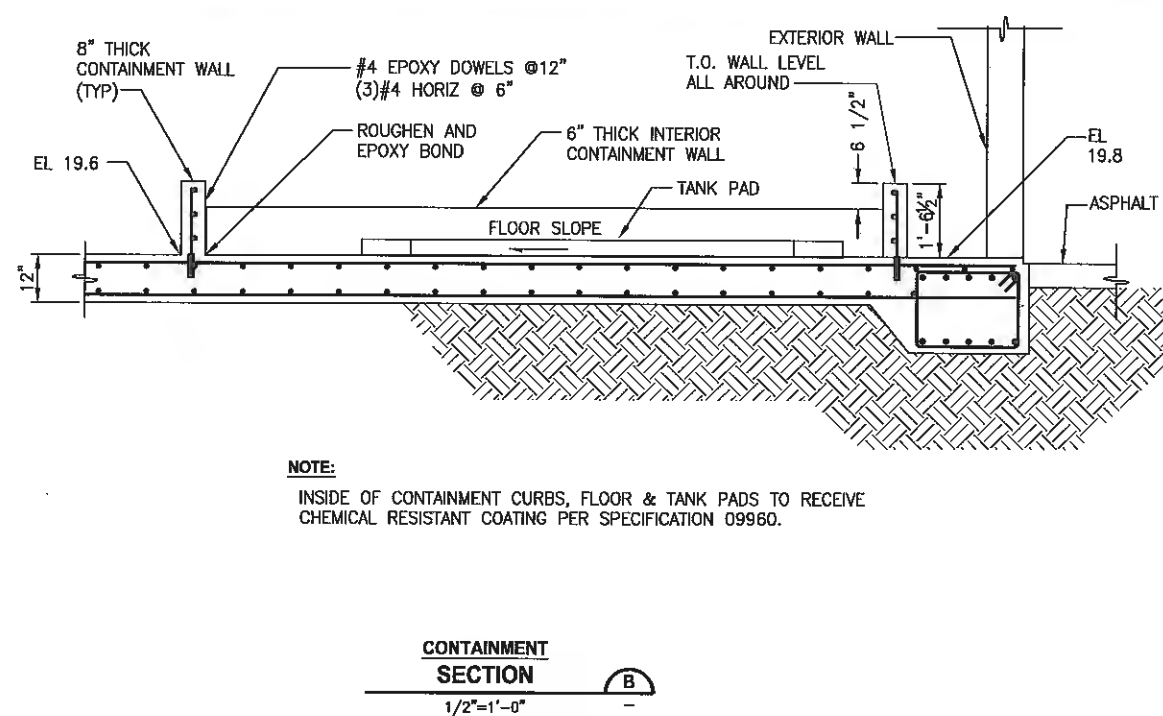
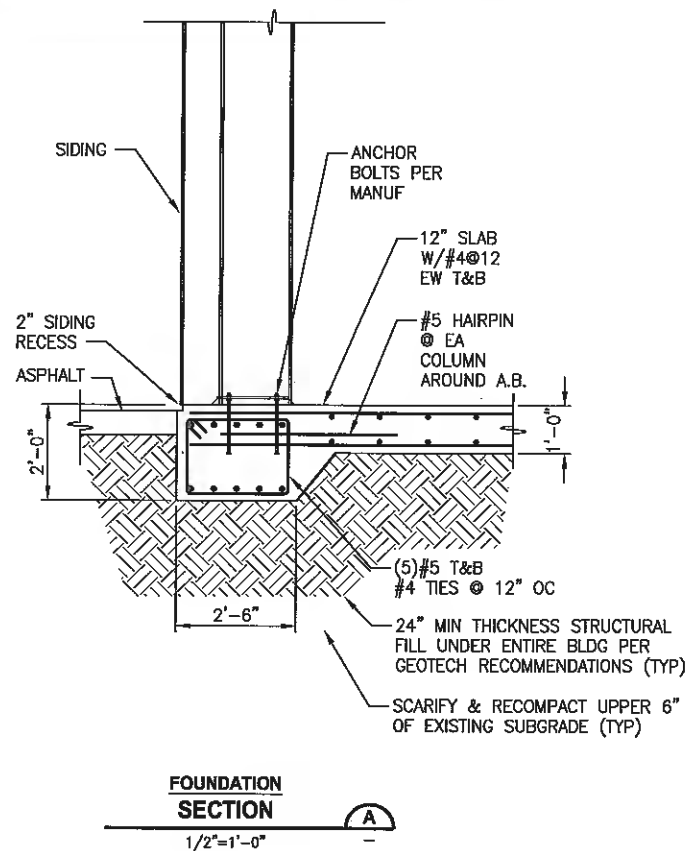
TREATMENT BUILDING FOUNDATION PLAN

DRAWING NO.
19 OF 72

S5

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4			APPROVED

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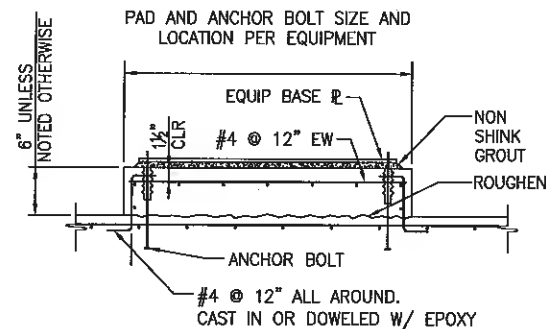
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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

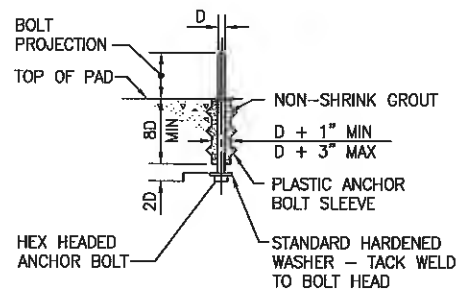
**TREATMENT BUILDING FOUNDATION
SECTION AND DETAILS I**

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CONSTRUCTION RECORDS
DATE: 08/26/12 BY: BTH

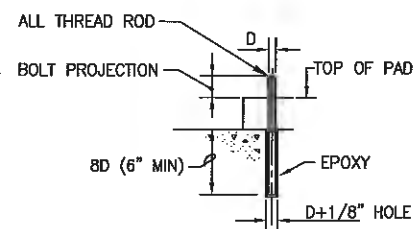
DRAWING NO.
20 OF 72
S6



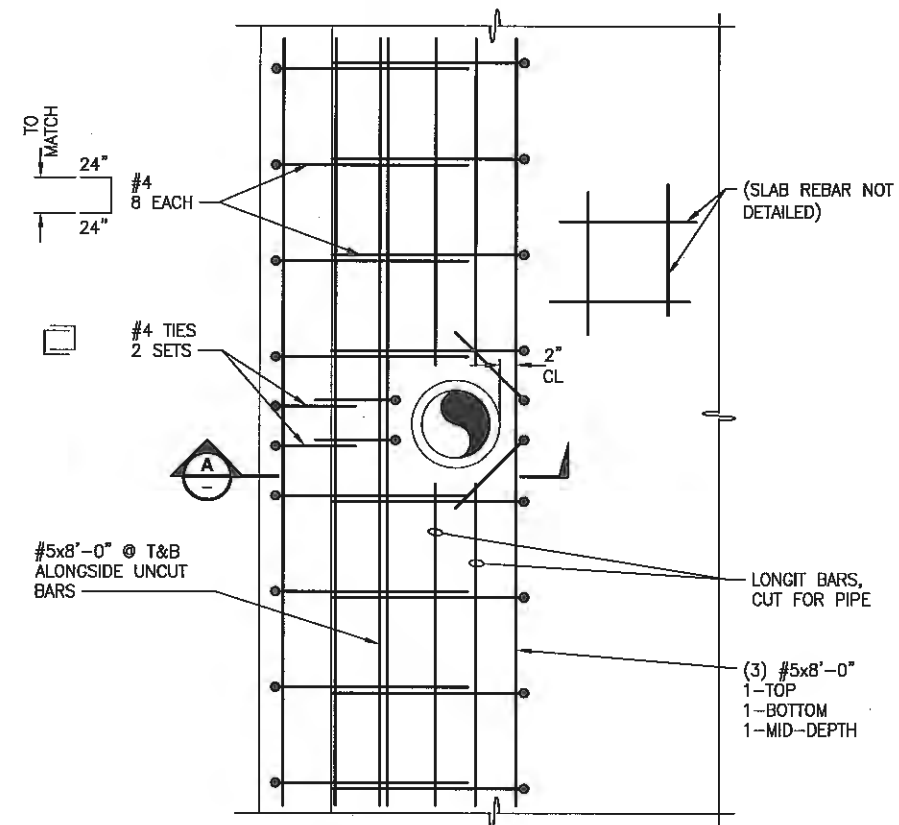
**EQUIPMENT PAD
DETAIL**
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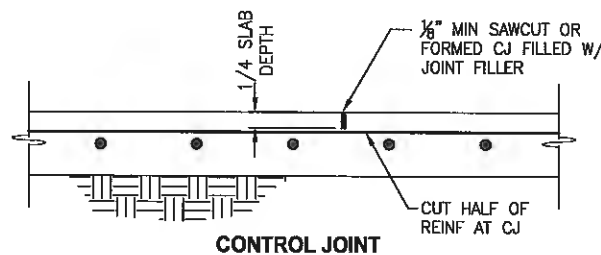
**ANCHOR BOLT
CAST-IN-PLACE
DETAIL**
NO SCALE TYP



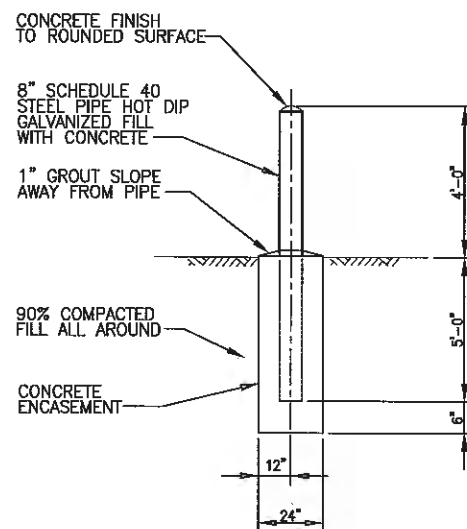
**ANCHOR BOLT
EPOXY
DETAIL**
NO SCALE TYP



**REBAR AT SPRINKLER RISER PIPE
DETAIL**
1\"/>



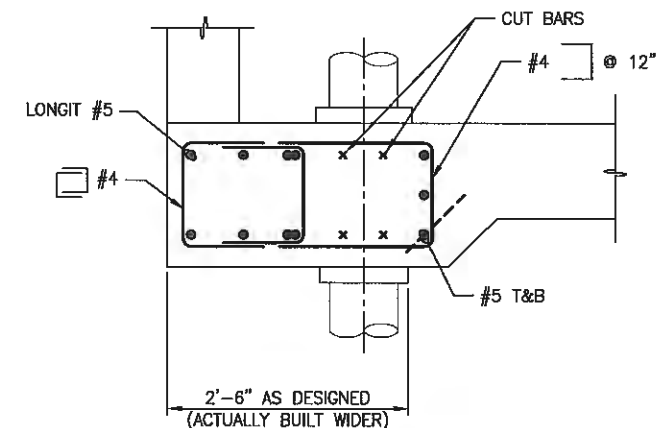
**TYPICAL SLAB ON GRADE JOINTS
DETAIL**
NO SCALE



**TYPICAL BOLLARD
DETAIL**
NO SCALE

NOTES:

1. STEEL PIPE SHALL BE SEAMLESS, CONFORMING TO TO ASTM A53, GRADE A.
2. HOT DIP GALVANIZED PIPE IN ACCORDANCE WITH ASTM A525, G-90 COMMERCIAL.
3. BOLLARDS SHALL BE LOCATED A MIN. OF 4.5' AND MAX. OF 5.5' FROM IDENTIFIED FACILITY.



SECTION
1\"/>

**REVISED TO CONFORM WITH
CONSTRUCTION RECORDS**

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File: SU2753312002-S7.dwg Plotted by: pelandem Date: Friday, October 05, 2012 14:47:48 PM

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			DRAWN
			D. PETERSON
			CHECKED
			APPROVED

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275-3312-004
DATE
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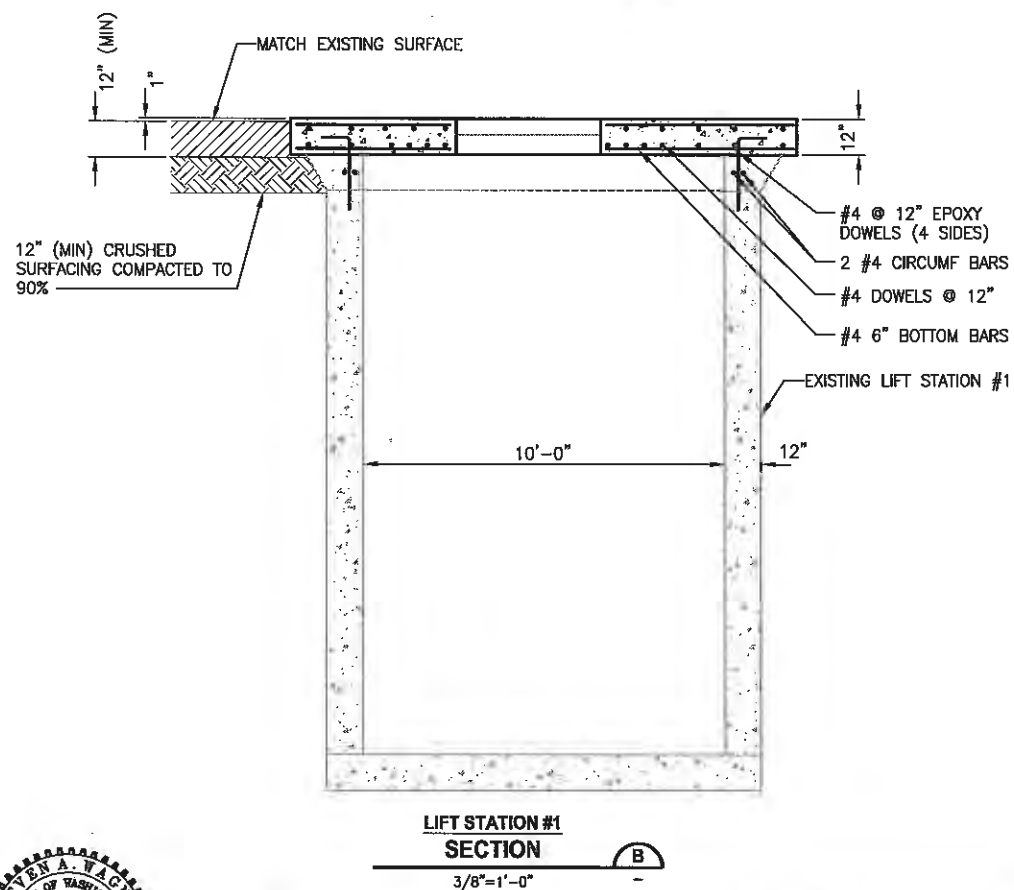
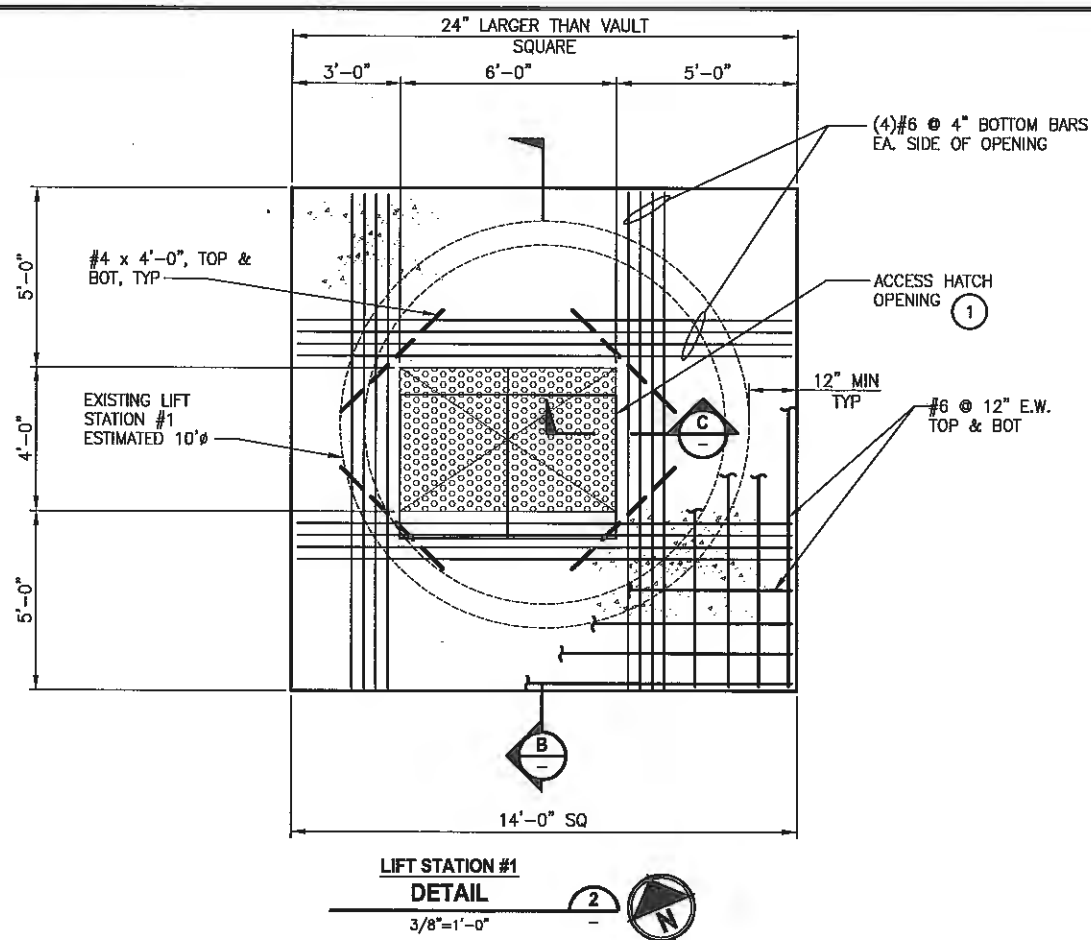
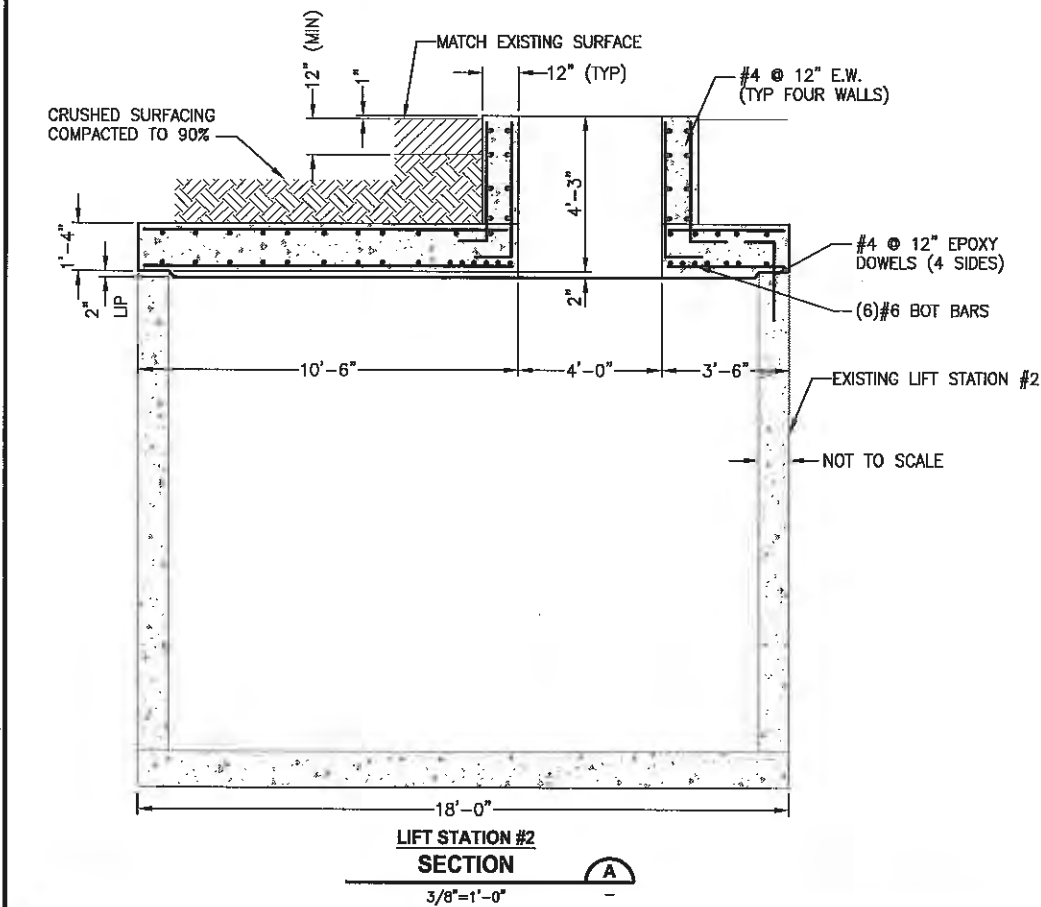
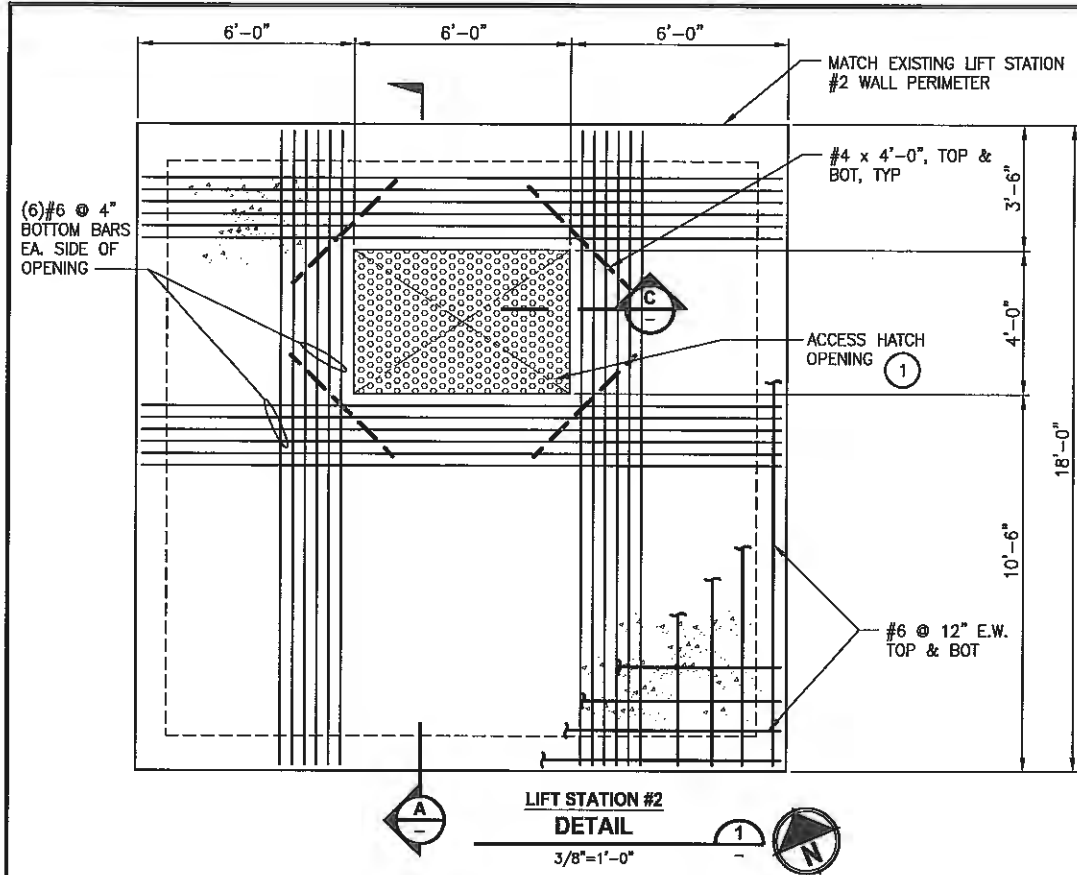


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PROJECT NAME
**SCHNITZER STEEL
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TACOMA, WASHINGTON

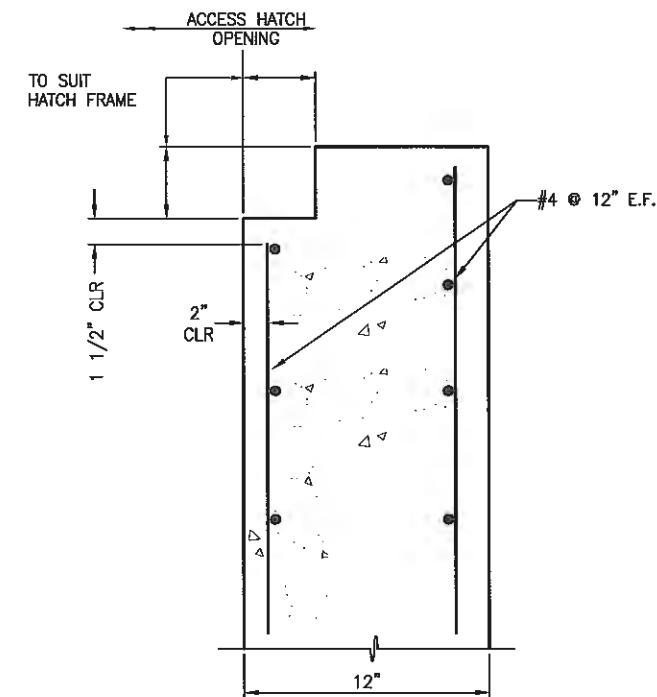
TYPICAL STRUCTURAL DETAILS

DRAWING NO.
21 OF 72
S7



NOTES:

- HATCH OPENING SHOWN SCHEMATICALLY. SEE MECHANICAL DRAWINGS FOR ACTUAL SIZE AND LOCATION OF THE OPENING.
- SLAB DESIGNED TO ACCOMMODATE AASHTO HS-20 LOADING.



HATCH SUPPORT SECTION

1 1/2" = 1'-0"

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PROJECT NAME
**SCHNITZER STEEL
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TACOMA, WASHINGTON

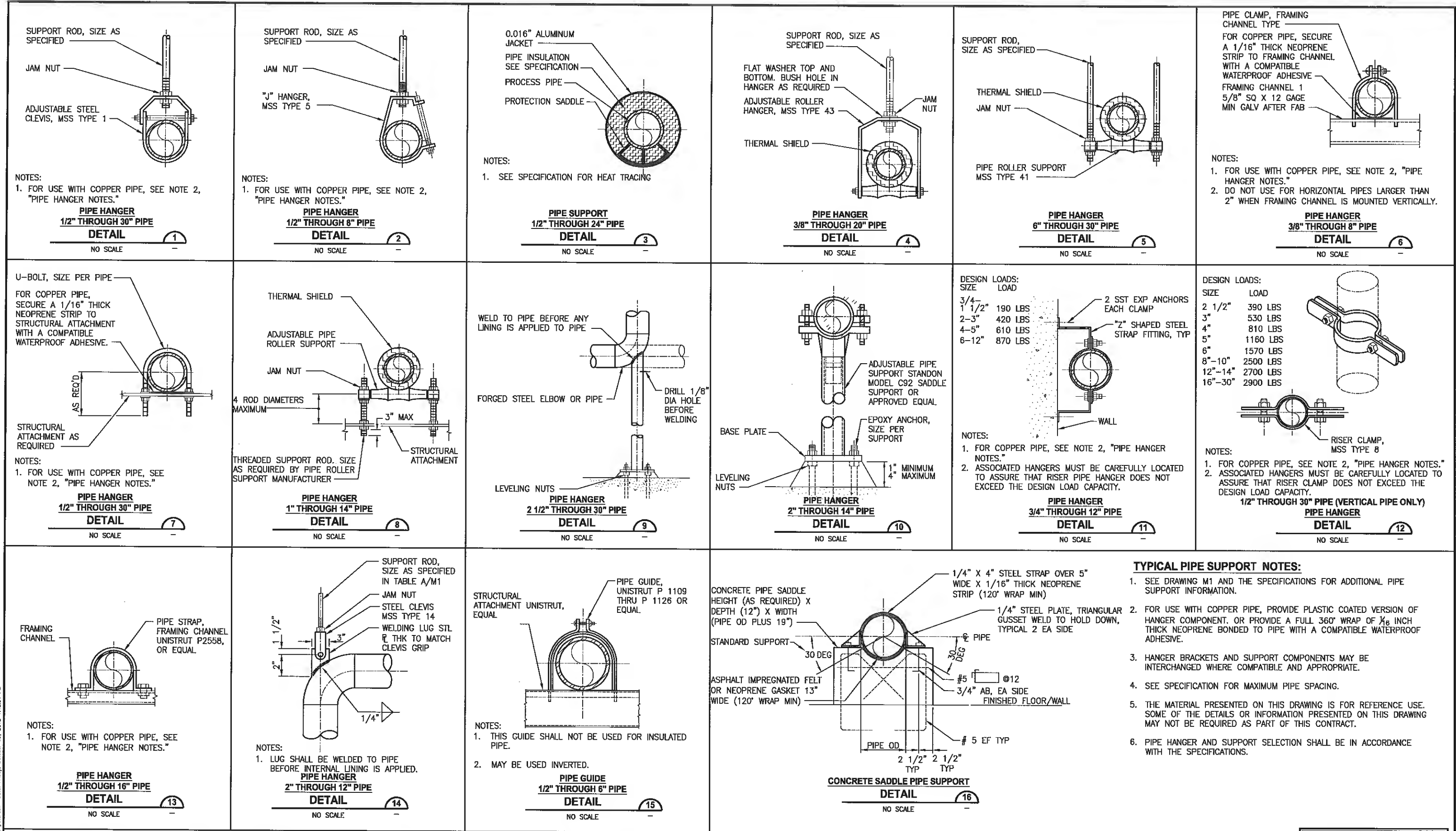
**LIFT STATION #1 AND #2
MODIFICATIONS**

DRAWING NO.
22 OF 72
S8

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4			APPROVED

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PROJECT NAME
SCHNITZER STEEL
STORMWATER IMPROVEMENTS
TACOMA, WASHINGTON

DRAWING NO.
23 OF 72
S9
TYPICAL PIPE SUPPORTS I

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File: SU2753312002-S10.dwg Plotted by: pferden Date: Friday, October 05, 2012 1:48:11 PM

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			CHECKED
			APPROVED

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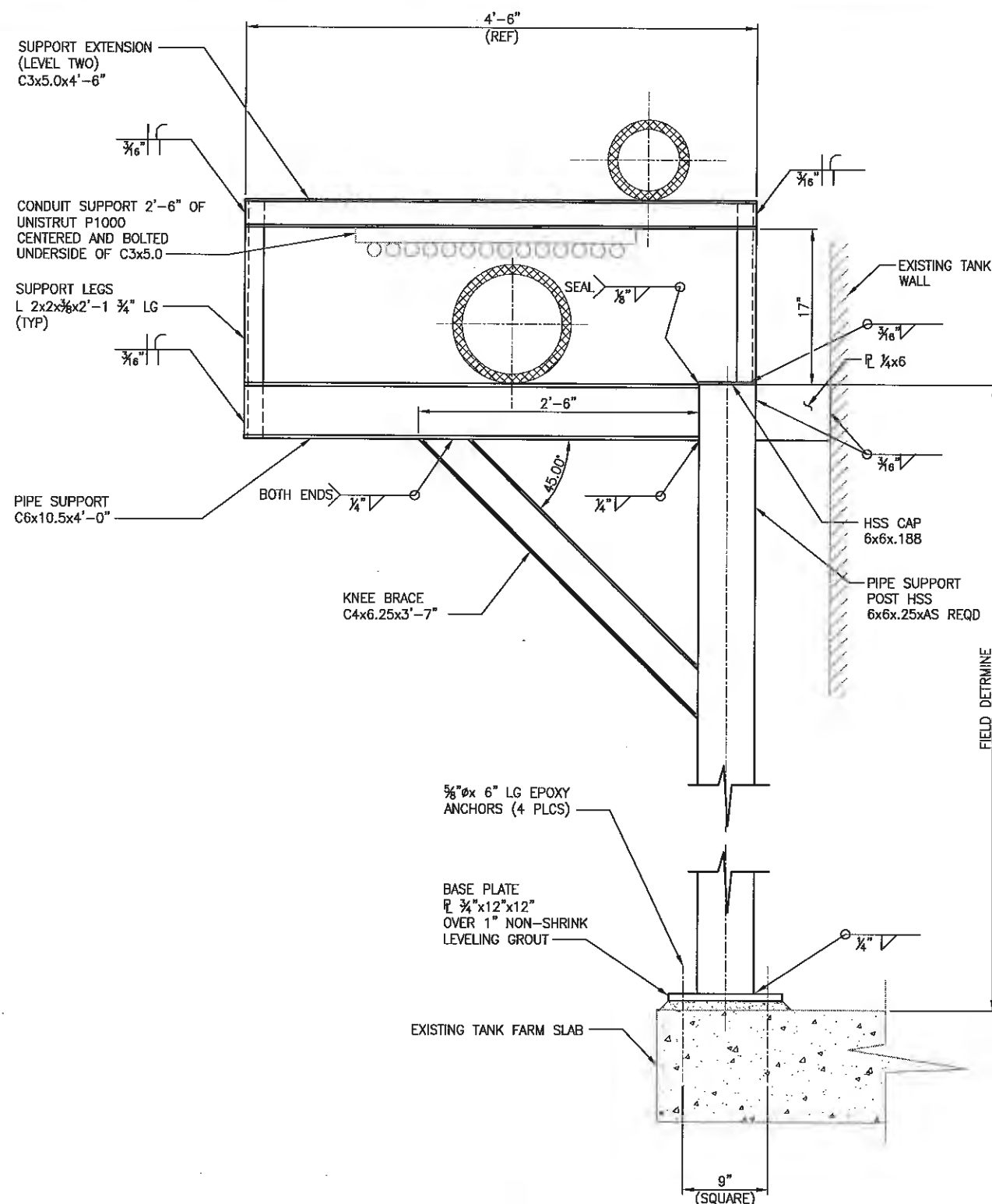
PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

TYPICAL PIPE SUPPORTS II

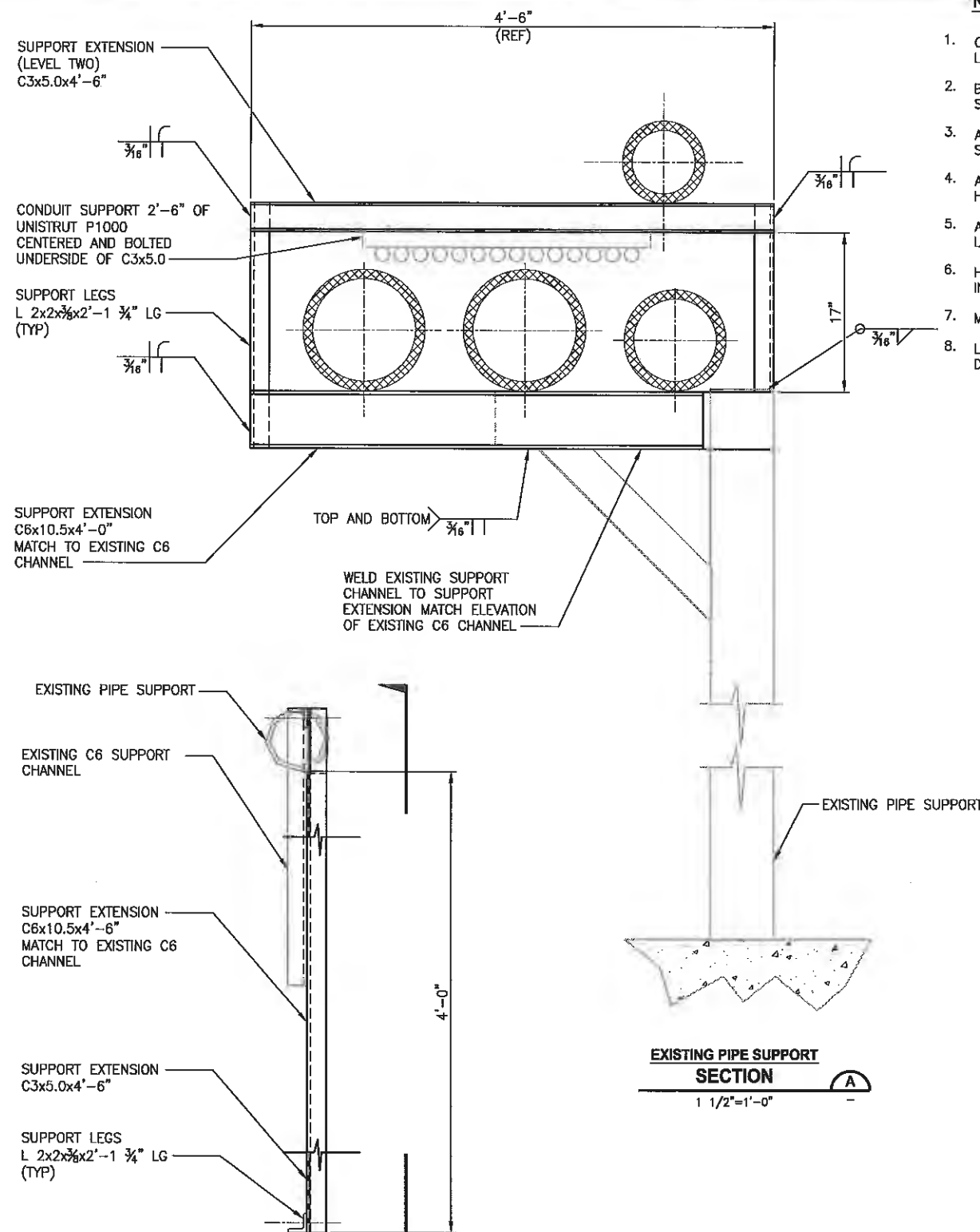
DRAWING NO.
24 OF 72
S10

NOTES:

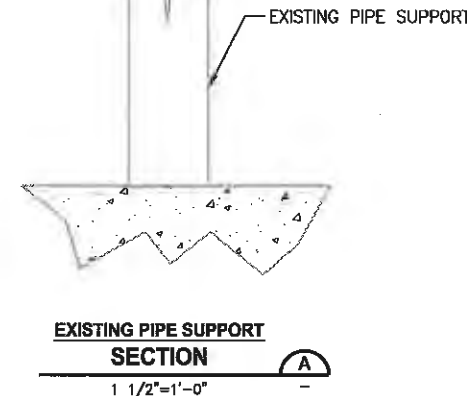
1. CONTRACTOR SHALL VERIFY DIMENSIONS, ELEVATIONS AND LOCATIONS PRIOR TO CONSTRUCTION.
2. BREAK ALL SHARP EDGES AFTER FABRICATION. SEE SPECIFICATIONS FOR SUPPORT COATINGS.
3. ALL FASTENERS AND HARDWARE SHALL BE 316L STAINLESS STEEL UNLESS NOTED OTHERWISE.
4. ALL STRUT SHALL BE FACTORY GALVANIZED AND STRUT HARDWARE SHALL BE STAINLESS STEEL.
5. ALL PIPE SHOWN IS IN APPROXIMATE LOCATIONS VERIFY LOCATIONS IN THE FIELD.
6. HANGER BRACKETS AND SUPPORT COMPONENTS MAY BE INTERCHANGED WHERE COMPATIBLE AND APPROPRIATE.
7. MOUNT PIPE TO SUPPORTS SEE DETAIL-7 SHEET S9.
8. LOCATE PROTECTION SADDLES AT EACH SUPPORT, SEE DETAIL-3 SHEET S9.



**PIPE SUPPORT
DETAIL**
1
1 1/2"=1'-0"



**EXISTING PIPE SUPPORT
DETAIL**
2
1 1/2"=1'-0"



**EXISTING PIPE SUPPORT
SECTION**
A
1 1/2"=1'-0"

BRACKET (SLOT UP)
UNISTRUT P 2514 OR
APPROVE EQUAL (TYP)

STRUT SUPPORT
UNISTRUT P 1000 OR APPROVED EQUAL

POST BASE UNISTRUT
P2072A OR APPROVED
EQUAL W/ 5/8"x6" LG EPOXY
ANCHORS (4 PLCS)

3/4" NON-SHRINK GROUT
LEVELING GROUT (MIN)

**PIPE SUPPORT
DETAIL**

1 1/2"=1'-0"

STRUT SUPPORT
UNISTRUT P 1001 OR APPROVED EQUAL

R 3/8"x6"x8"

ADDITIONAL SUPPORTS (LOCATE AS NEEDED)
UNISTRUT P 2542 THRU P 2546
DRILL AND TAP FOR 3/8"-16 UNC FOR MOUNTING BOLTS (TYP)

SUPPORT POST
HSS 4"x4"x3/8"

BASE PLATE 1/2"x12"x12" W/
(4) HIT-RE500-SD
3/8"x4.725 MIN EMBED

3/4" NON-SHRINK
GROUT LEVELING
GROUT (MIN)

**PIPE SUPPORT
DETAIL**

1 1/2"=1'-0"

PIPE SUPPORT
C3x5.0x4'-0"

CONDUIT SUPPORT 2'-6" OF
UNISTRUT P1000
CENTERED AND BOLTED
UNDERSIDE OF C3x5.0

SUPPORT LEGS
L 2x2x3/8x1'-10 1/4" LG

PIPE SUPPORT
C6x10.5x4'-0"

BOTH ENDS

KNEE BRACE
C4x6.25x3'-7"

CL OF POST AND STRUT

STRUT SUPPORT
UNISTRUT P 1001 OR
APPROVED EQUAL

R 3/8"x6"x8"
(REF)

MOUNTING BOLTS
3/8"x16 UNCxAS REQD
(TYP)

**PIPE SUPPORT
SECTION**

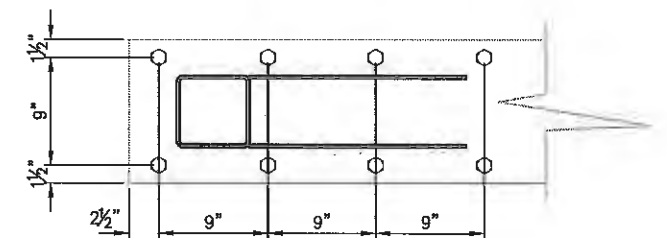
3"=1'-0"

**PIPE SUPPORT
DETAIL**

1 1/2"=1'-0"

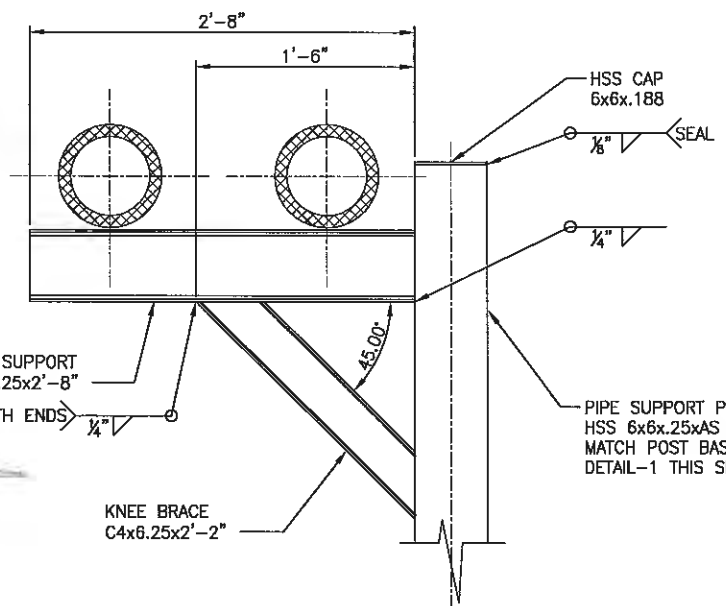
NOTES:

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2. BREAK ALL SHARP EDGES AFTER FABRICATION. SEE SPECIFICATIONS FOR SUPPORT COATINGS.
3. ALL FASTENERS AND HARDWARE SHALL BE 316L STAINLESS STEEL UNLESS NOTED OTHERWISE.
4. ALL STRUT SHALL BE FACTORY GALVANIZED AND STRUT HARDWARE SHALL BE STAINLESS STEEL.
5. ALL PIPE SHOWN IS IN APPROXIMATE LOCATIONS AND ELEVATIONS. VERIFY LOCATIONS IN THE FIELD.
6. HANGER BRACKETS AND SUPPORT COMPONENTS MAY BE INTERCHANGED WHERE COMPATIBLE AND APPROPRIATE.
7. MOUNT PIPE TO SUPPORTS SEE DETAIL-7 SHEET S9.
8. LOCATE PROTECTION SADDLES AT EACH SUPPORT, SEE DETAIL-3 SHEET S9.



SECTION

1 1/2"=1'-0"



**PIPE SUPPORT
DETAIL**

1 1/2"=1'-0"

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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

TYPICAL PIPE SUPPORTS III

DRAWING NO.
25 OF 72
S11

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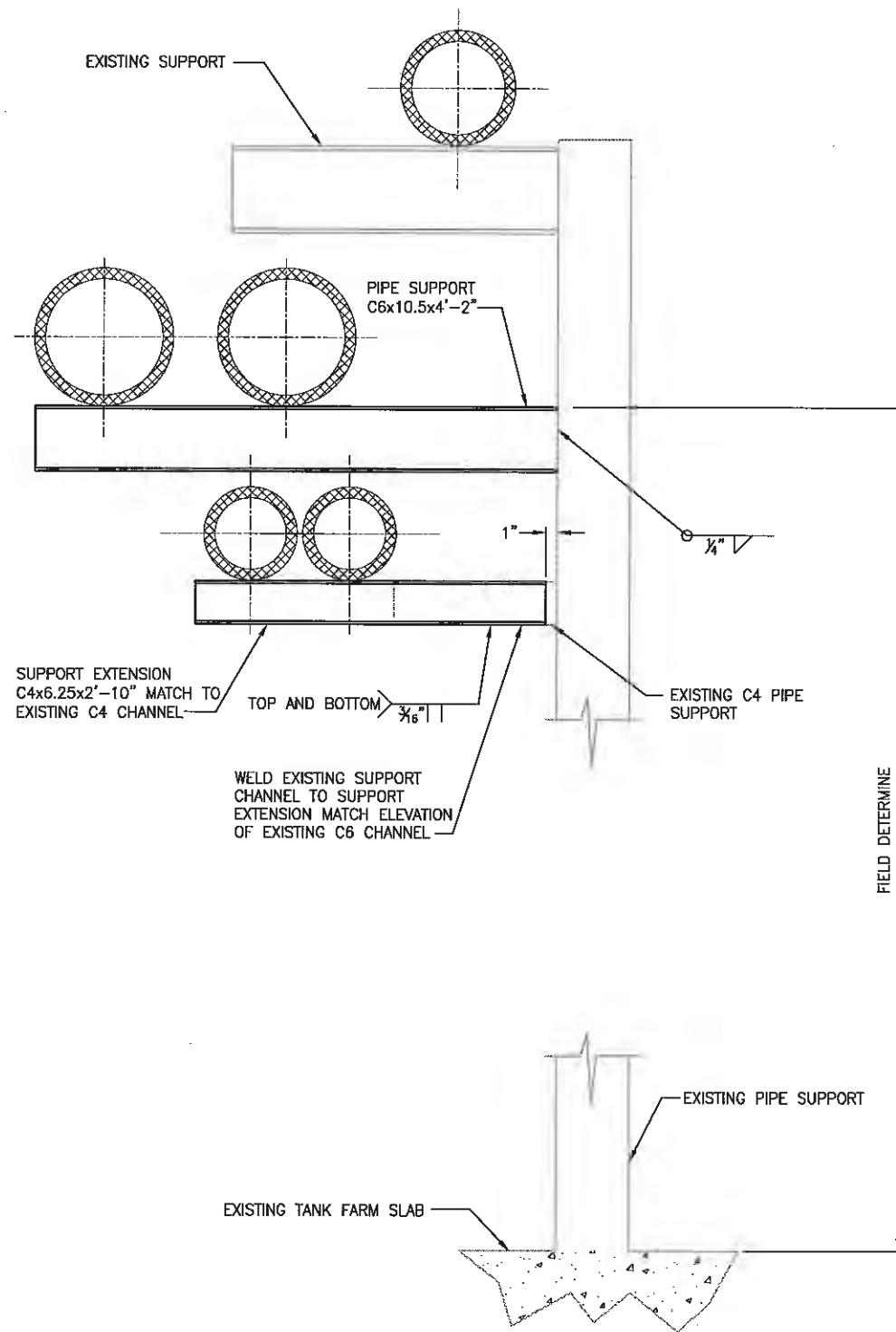
PROJECT NAME	SCHNITZER STEEL STORMWATER IMPROVEMENTS
	TACOMA, WASHINGTON

TYPICAL PIPE SUPPORTS IV

DRAWING NO. 26 OF 72
S12

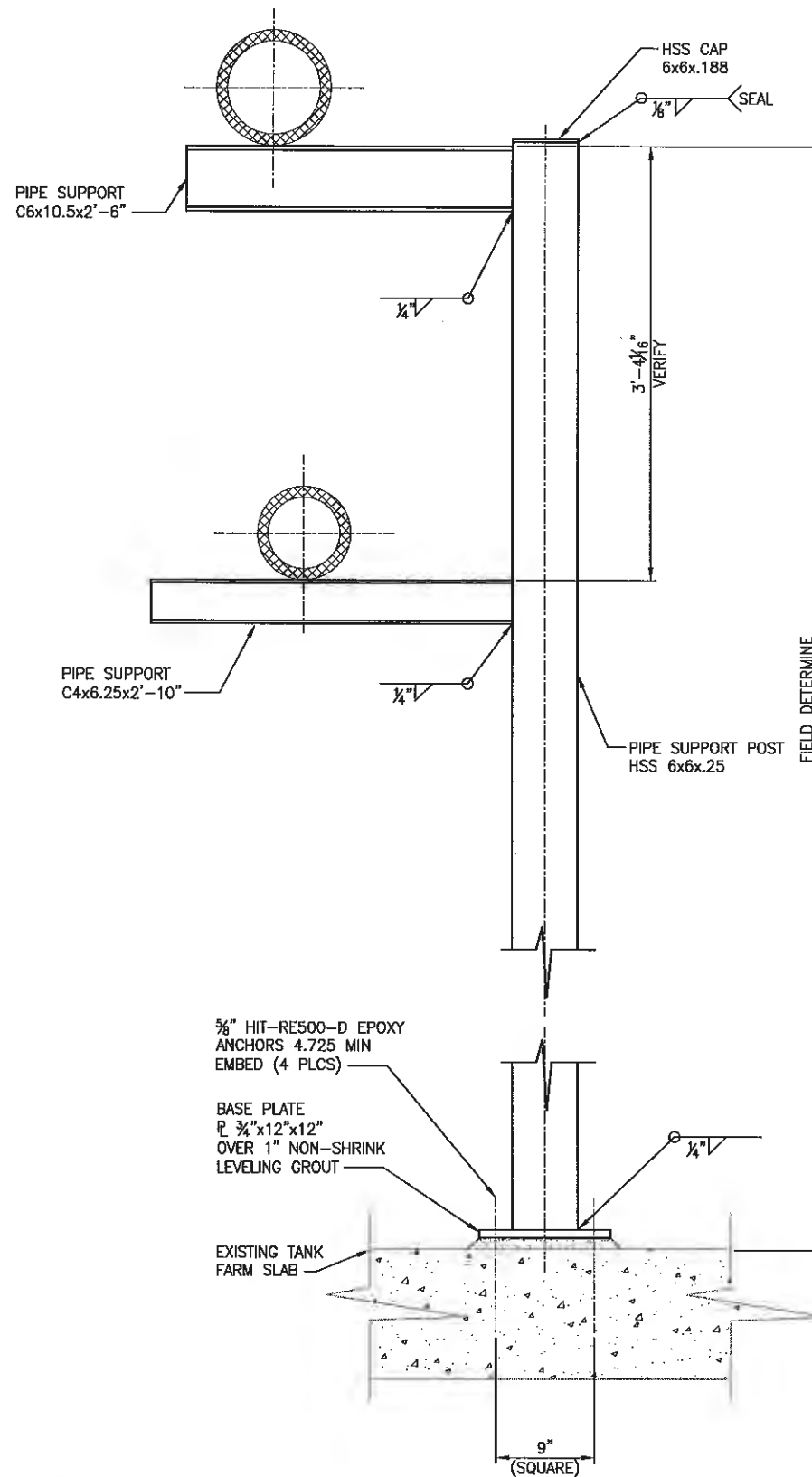
NOTES:

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- BREAK ALL SHARP EDGES AFTER FABRICATION. SEE SPECIFICATIONS FOR SUPPORT COATINGS.
- ALL FASTENERS AND HARDWARE SHALL BE 316L STAINLESS STEEL UNLESS NOTED OTHERWISE.
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- HANGER BRACKETS AND SUPPORT COMPONENTS MAY BE INTERCHANGED WHERE COMPATIBLE AND APPROPRIATE.
- MOUNT PIPE TO SUPPORTS SEE DETAIL-7 SHEET S9.
- LOCATE PROTECTION SADDLES AT EACH SUPPORT, SEE DETAIL-3 SHEET S9.



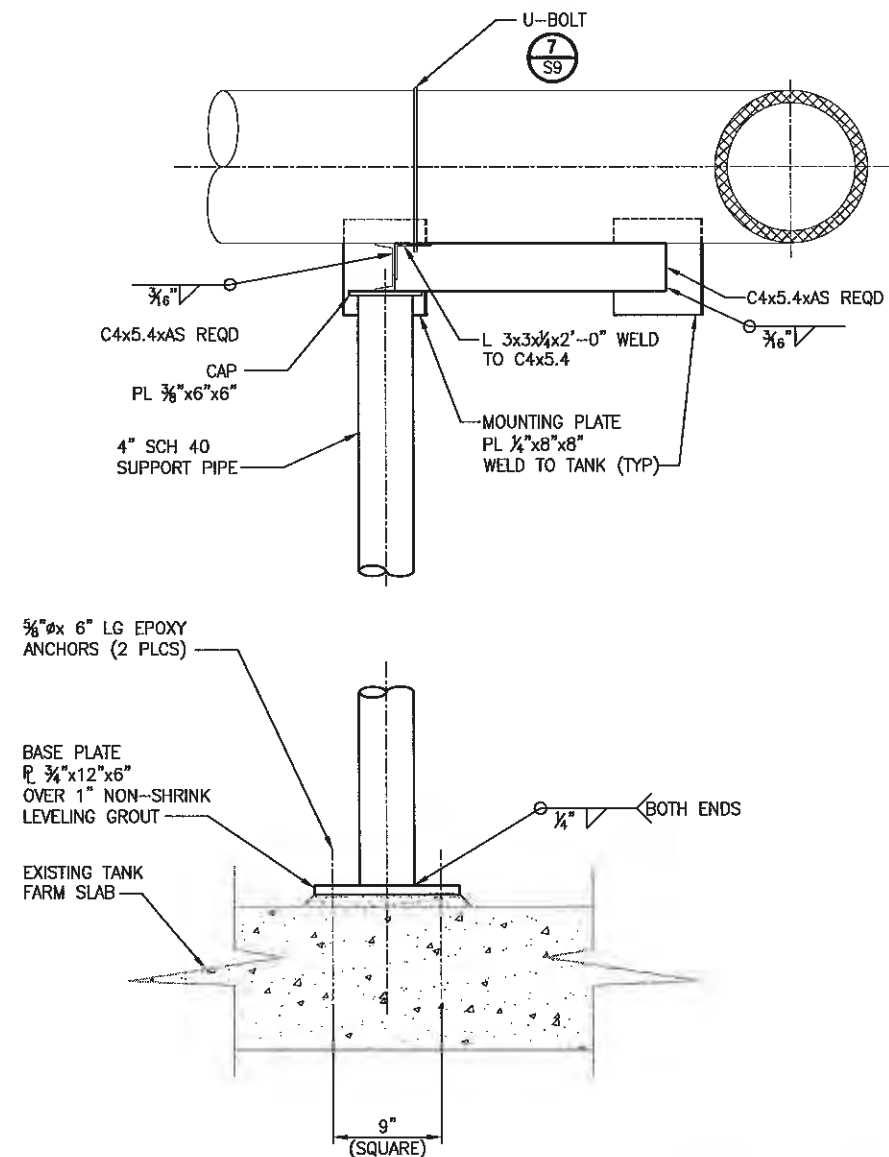
**EXISTING PIPE SUPPORT
DETAIL**

1 1/2"=1'-0"



**PIPE SUPPORT
DETAIL**

1 1/2"=1'-0"



**PIPE SUPPORT
DETAIL**

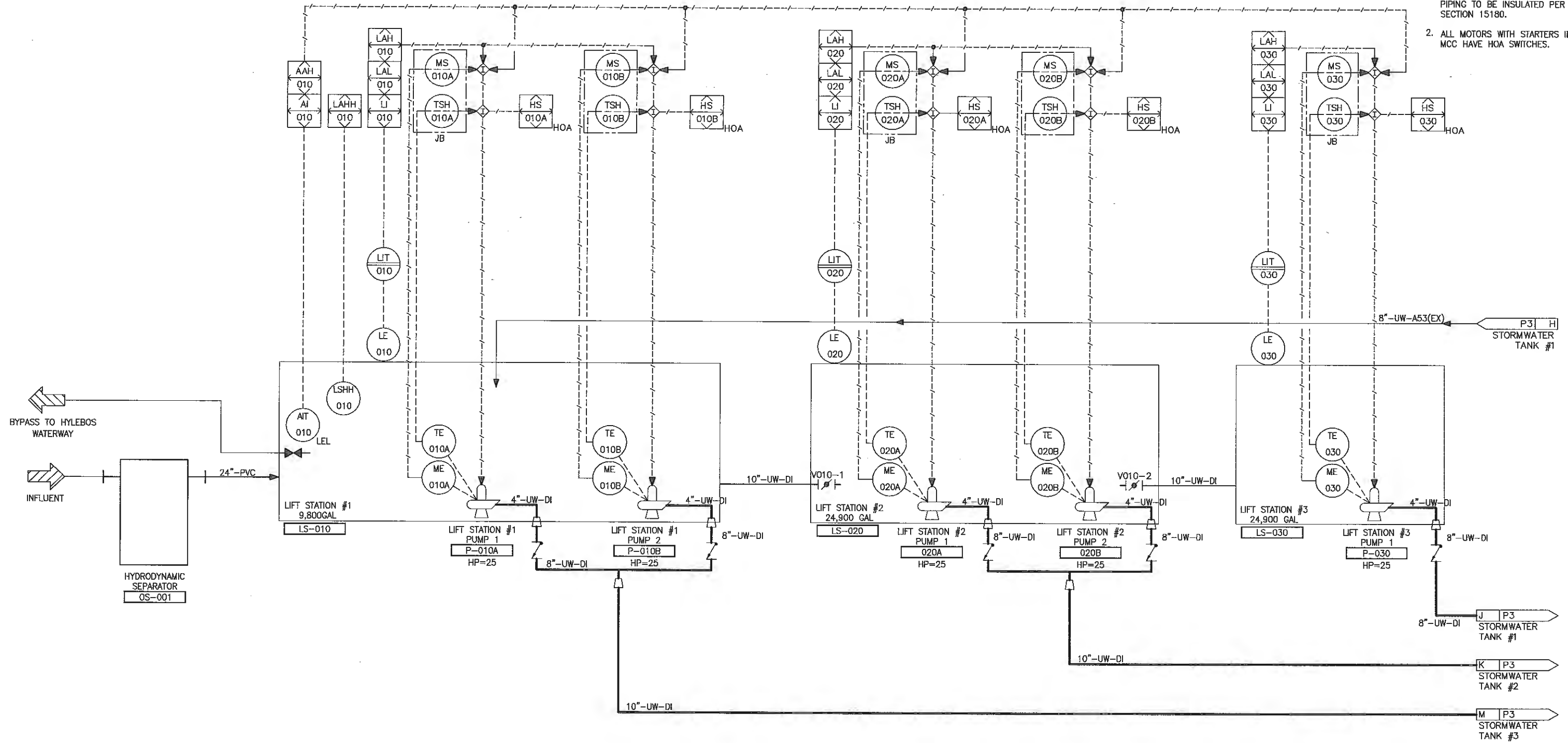
1 1/2"=1'-0"

**REVISED TO CONFORM WITH
CONSTRUCTION RECORDS**

DATE: 08/26/12 BY: BTH

NOTES:

1. ALL EXTERIOR ABOVE GROUND PIPING TO BE INSULATED PER SECTION 15180.
2. ALL MOTORS WITH STARTERS IN MCC HAVE HOA SWITCHES.



Plotted by: brcdkt Date: Thursday, July 26, 2012 11:40:24 AM

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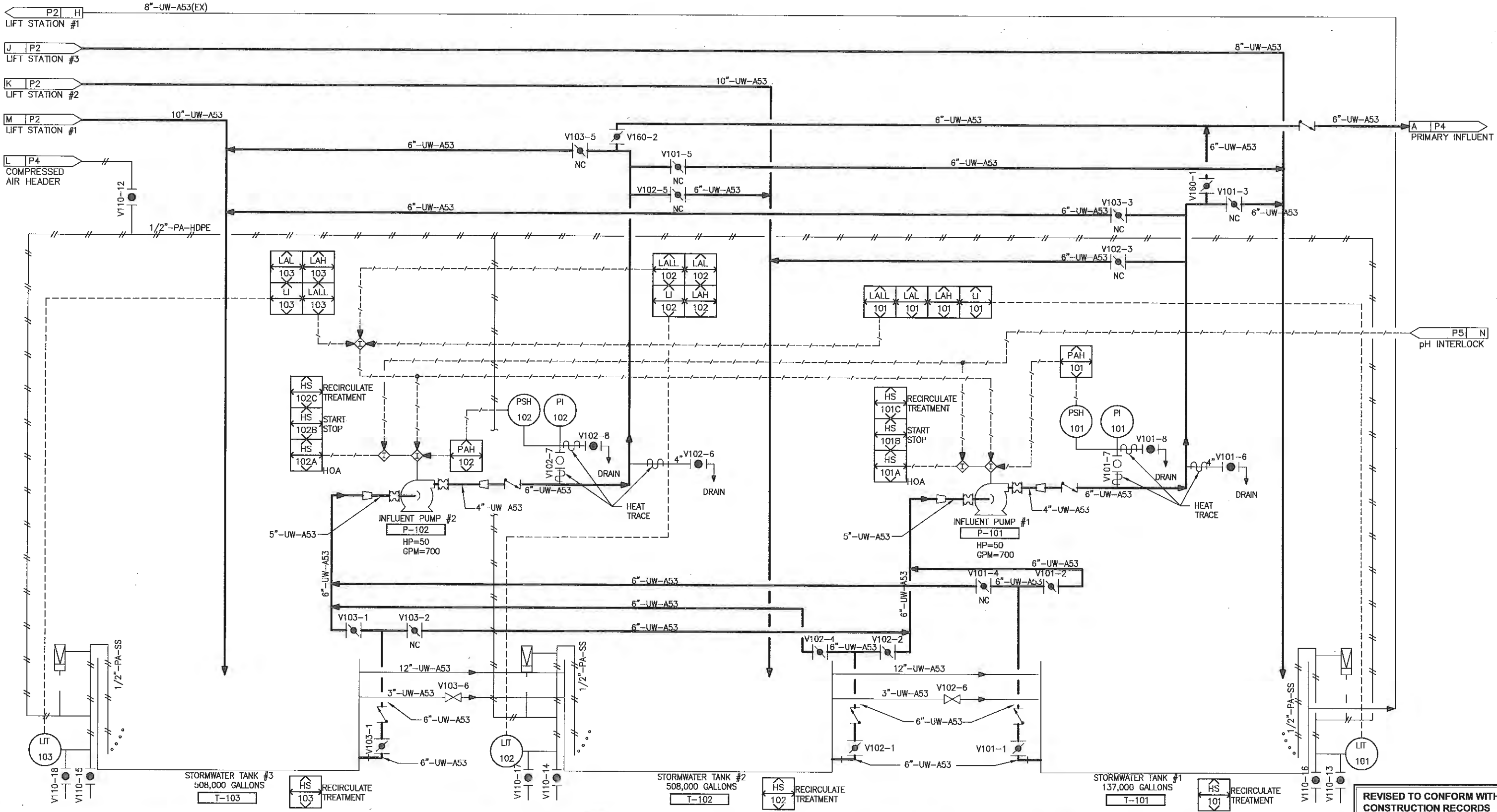
PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

PROCESS SCHEMATIC I

DRAWING NO.
28 OF 65
P2

REVISED TO CONFORM WITH
CONSTRUCTION RECORDS
DATE: 07/26/12 BY: BTH

- NOTES:**
- 1. ALL P.I.'S AND P.I.T.'S USE 1/2" NPT TO PROCESS.
 - 2. ALL EXTERIOR ABOVE GROUND WATER PIPING TO BE INSULATED PER SECTION 15130.
 - 3. ALL MOTORS WITH STARTERS IN MCC HAVE HOA SWITCHES.



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File: S02753312002-P3.dwg

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			C. WEST
			CHECKED
			APPROVED

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JOB No:
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PROJECT NAME

**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**

TACOMA, WASHINGTON

PROCESS SCHEMATIC II

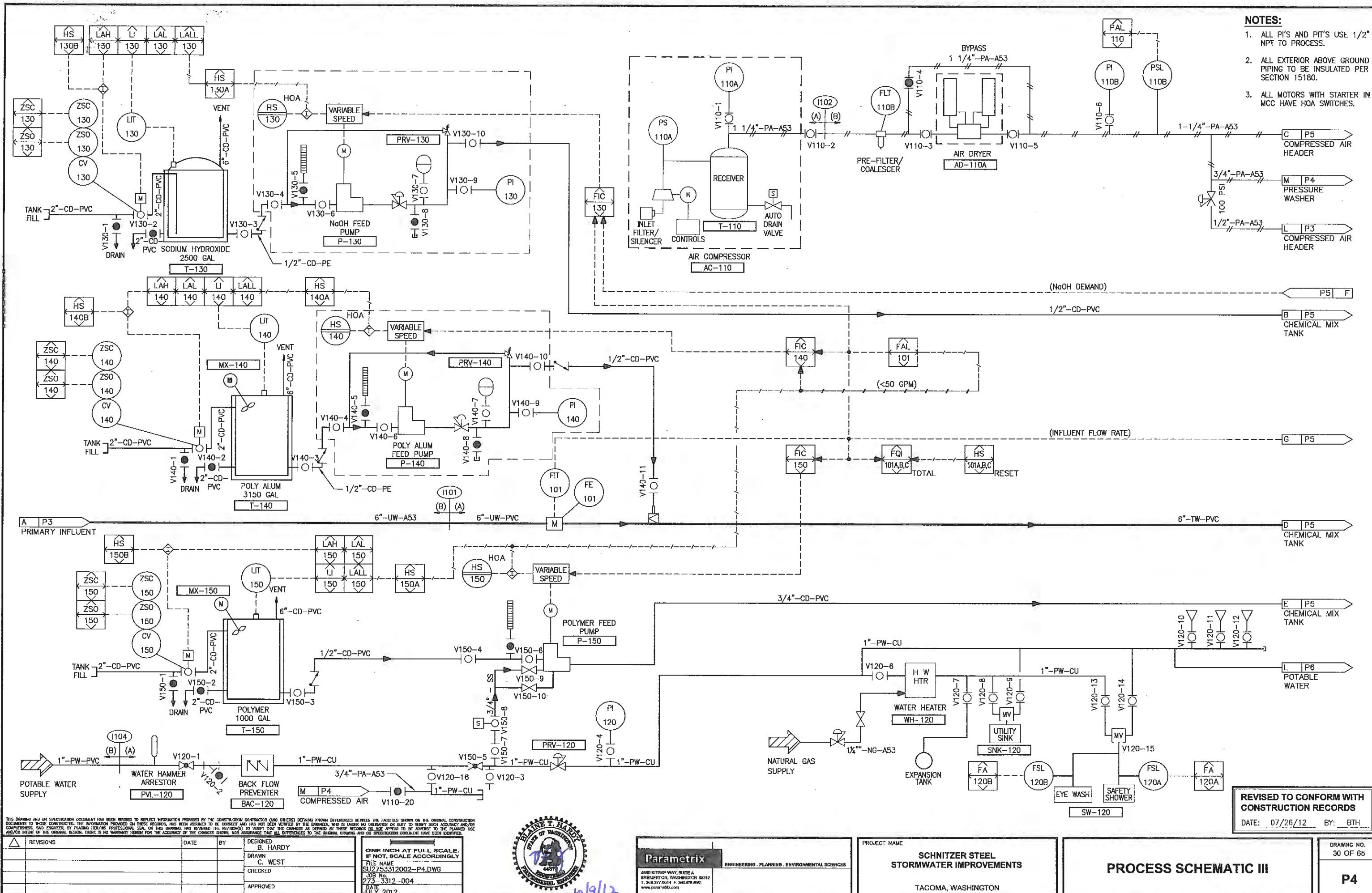
DRAWING NO.
29 OF 65

P3

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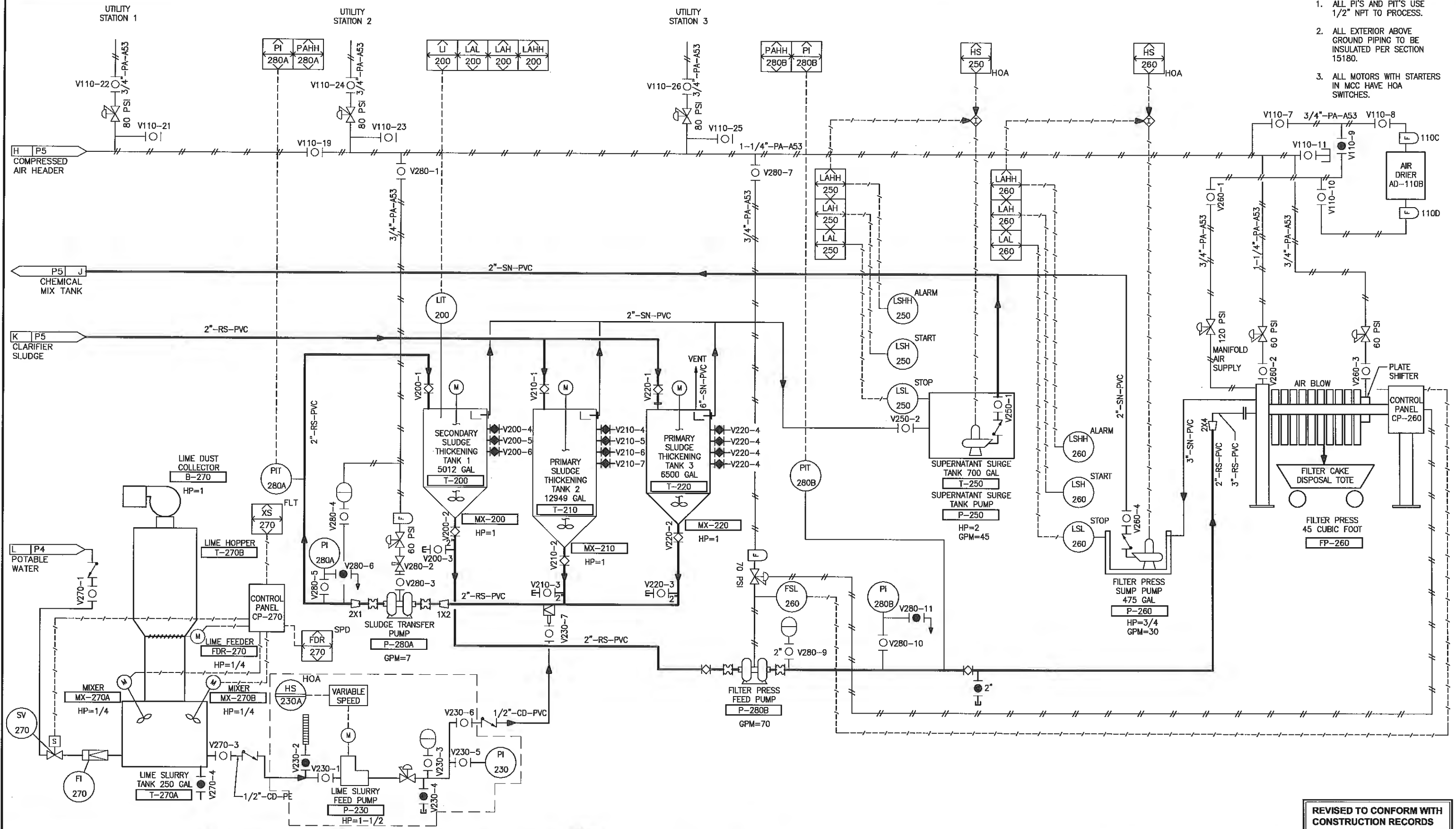
DATE: 07/26/12 BY: BTH

Plotted by: bmsltd Date: Thursday, July 26, 2012 11:40:16 AM
File: SU2753312002-P4.dwg



NOTES:

1. ALL PI'S AND PIT'S USE 1/2" NPT TO PROCESS.
2. ALL EXTERIOR ABOVE GROUND PIPING TO BE INSULATED PER SECTION 15180.
3. ALL MOTORS WITH STARTERS IN MCC HAVE HOA SWITCHES.



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STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

PROCESS SCHEMATIC V

DRAWING NO.
32 OF 72
P6

GENERAL ABBREVIATIONS:

CL	CENTERLINE	FCV	FLOW CONTROL VALVE
AT	AT	FD	FLOOR DRAIN
DIAMETER	DIAMETER	FE	FLOW ELEMENT
AIR	AIR	FF	FINISH FLOOR
AB	ANCHOR BOLT	FG	FINISH GRADE
ACP	ASPHALTIC CONCRETE PAVEMENT	FH	FIRE HYDRANT
AFF	ABOVE FINISH FLOOR	FHD	FUME HOOD
AHU	AIR HANDLING UNIT	FIG	FIGURE
AL	ALUMINUM	FIN	FINISH, FINISHED
ALT	ALTERNATE, ALTERNATOR	FL	FLOW LINE, FLOOR
APPROX	APPROXIMATE	FLG	FLANGE, FLANGED
ARCH	ARCHITECTURAL	FLR	FLOOR
ARV	AIR RELEASE VALVE	FM	FORCE MAIN
ASSY	ASSEMBLY	FO	FUEL OIL
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS	FP	FIRE PROTECTION
		FOV	FUEL OIL VENT
AUX	AUXILIARY	FRP	FIBERGLASS REINFORCED PLASTIC
B	BLOWER	FT	FEET, FOOT
BET	BETWEEN	FTG	FOOTING
BF	BLIND FLANGE	G	GAS
BFP	BELT FILTER PRESS	GA	GAGE, GAUGE
BLDG	BUILDING	GAL	GALLON
BM	BEAM, BENCH MARK	GALV	GALVANIZED
BMP	BEST MANAGEMENT PRACTICE	GDR	GRINDER
BOD	BOTTOM OF DUCT	GE	GROOVED END
BOT	BOTTOM	GPM	GALLONS PER MINUTE
CB	CATCH BASIN	GS	GALVANIZED STEEL
CCP	CONCRETE CYLINDER PIPE	GV	GATE VALVE
CD	CEILING DIFFUSER	HB	HOSE BIBB
CF	CUBIC FEET	HDPE	HIGH DENSITY POLYETHYLENE
CFM	CUBIC FEET PER MINUTE	HORIZ	HORIZONTAL
CFS	CUBIC FEET PER SECOND	HP	HORSEPOWER, HIGH POINT
CI	CAST IRON	HPU	HYDRAULIC POWER UNIT
CIP	CAST IN PLACE, CAST IRON PIPE	HR	HOSE, HANDRAIL
CL	CLASS, CLEAR, CLEARANCE	HST	HOIST
CLR	CLEAR, CLEARANCE	HT	HEIGHT
CMU	CONCRETE MASONRY UNIT	ID	INSIDE DIAMETER
CO	COUNTY, CLEANOUT	IE	INVERT ELEVATION
COL	COLUMN	IB, "	INCH
COMB	COMBINATION	INCL	INCLUDE, INCLUDING
CONC	CONCRETE	INF	INFLUENT
CONST	CONSTRUCT, CONSTRUCTION	JT	JOINT
CONT	CONTINUE, CONTINUOUS	KW	KILOWATT
CP	CONTROL PANEL	LB	POUND
CSBC	CRUSHED SURFACING BASE COURSE	LF	LINEAR FEET, LINEAR FOOT
CSTC	CRUSHED SURFACING TOP COURSE	LT	LEFT
CTR	CENTER	LWL	LOW WATER LEVEL
CU	COPPER	MAX	MAXIMUM
CV	CHECK VALVE	MECH	MECHANICAL
CY	CUBIC YARD	MFR	MANUFACTURER
D	DEPTH, DENSITY, DRAIN, DRAINAGE	MGD	MILLION GALLONS PER DAY
DEMO	DEMOLITION	MH	MANHOLE
DEPT	DEPARTMENT	MIN	MINIMUM, MINUTE
DET	DETAIL	MISC	MISCELLANEOUS
DI	DUCTILE IRON	MJ	MECHANICAL JOINT
DIA	DIAMETER	NAVD	NORTH AMERICAN VERTICAL DATUM
DIM	DIMENSION	NC	NORMALLY CLOSED
DIP	DUCTILE IRON PIPE	NEG	NEGATIVE
DISCH	DISCHARGE	NIC	NOT IN CONTRACT
DN	DOWN	NO	NORMALLY OPEN, NUMBER
DPR	DAMPER	NO., #	NUMBER
DWG	DRAWING	NOM	NOMINAL
E	EAST, EASTING	NPT	NATIONAL PIPE THREAD
EA	EACH	NTS	NOT TO SCALE
EE	ENGINE EXHAUST	OA	ODOROUS AIR
EF	EACH FACE, EXHAUST FAN	OAE	ODOROUS AIR EXHAUST
EG	EXHAUST GRILLE, EMERGENCY GENERATOR	OCU	ODOROUS CONTROL UNIT
EL	ELEVATION	OC	ON CENTER
ELEC	ELECTRIC, ELECTRICAL	OD	OUTSIDE DIAMETER
ELEV	ELEVATION	OH	OVERHEAD
EOP	EDGE OF PAVEMENT	OHWM	ORDINARY HIGH WATER MARK
EQ, =	EQUAL, EQUALIZATION	OPNG	OPENING
EQUIP	EQUIPMENT		
EQUIV	EQUIVALENT		
EW	EACH WAY	PCO	PRESSURE CLEANOUT
EXIST	EXISTING	PE	PLAIN END
HWL	HIGH WATER LEVEL	PI	PRESSURE INDICATOR
F	FAHRENHEIT, FACE	PL, P	PLATE
FCA	FLANGE COUPLING ADAPTER		

PNL	PANEL	PSI	POUNDS PER SQUARE INCH
POLY	POLYETHYLENE	PSIG	POUNDS PER SQUARE INCH GAGE
PS	PRESSURE SWITCH	PVC	POLYVINYL CHLORIDE
PSI	POUNDS PER SQUARE INCH	PW	POTABLE WATER
PSIG	POUNDS PER SQUARE INCH GAGE	QTY	QUANTITY
PVC	POLYVINYL CHLORIDE	R	RISER, RADIUS, RESTRAINED
PW	POTABLE WATER	RAD	RADIUS
QTY	QUANTITY	RCP	REINFORCED CONCRETE PIPE
R	RISER, RADIUS, RESTRAINED	REF	REFERENCE
RAD	RADIUS	REINF	REINFORCEMENT, REINFORCE, REINFORCING
RCP	REINFORCED CONCRETE PIPE	REQD	REQUIRED
REF	REFERENCE	REV	REVERSE, REVISE, REVISION
REINF	REINFORCEMENT, REINFORCE, REINFORCING	RG	RETURN GRILL
REQD	REQUIRED	RM	ROOM
REV	REVERSE, REVISE, REVISION	ROW	RIGHT OF WAY
RG	RETURN GRILL	RBPB	REDUCED PRESSURE BACKFLOW PREVENTER
RM	ROOM	RPM	REVOLUTIONS PER MINUTE
ROW	RIGHT OF WAY	RS	RAW SEWAGE
RBPB	REDUCED PRESSURE BACKFLOW PREVENTER	RT	RIGHT
RPM	REVOLUTIONS PER MINUTE	RW	RIGHT OF WAY
RS	RAW SEWAGE	S	SLOPE, SOUTH
RT	RIGHT	SCFM	STANDARD CUBIC FEET PER MINUTE
RW	RIGHT OF WAY	SD	STORM DRAIN
S	SLOPE, SOUTH	SDR	SANITARY DRAIN
SCFM	STANDARD CUBIC FEET PER MINUTE	SDMH	STORM DRAIN MANHOLE
SD	STORM DRAIN	SEC	SECOND(S), SECONDARY
SDR	SANITARY DRAIN	SECT	SECTION
SDMH	STORM DRAIN MANHOLE	SF	SUPPLY FAN
SEC	SECOND(S), SECONDARY	SG	SLUICE GATE, SUPPLY GRILL
SECT	SECTION	SHT	SHEET
SF	SUPPLY FAN	SIM	SIMILAR
SG	SLUICE GATE, SUPPLY GRILL	SPEC	SPECIFICATION
SHT	SHEET	SPG	SPACING
SIM	SIMILAR	SR	STATE ROUTE, SUPPLY REGISTER
SPEC	SPECIFICATION	SS	SANITARY SEWER
SPG	SPACING	SSMH	SANITARY SEWER MANHOLE
SR	STATE ROUTE, SUPPLY REGISTER	SST	STAINLESS STEEL
SS	SANITARY SEWER	ST	STREET
SSMH	SANITARY SEWER MANHOLE	STA	STATION
SST	STAINLESS STEEL	STD	STANDARD
ST	STREET	STL	STEEL
STA	STATION	SW	SERVICE WATER
STD	STANDARD	T	TANK
STL	STEEL	TDH	TOTAL DYNAMIC HEAD
SW	SERVICE WATER	TEMP	TEMPERATURE, TEMPORARY
T	TANK	TESC	TEMPORARY EROSION SEDIMENTATION CONTROL
TDH	TOTAL DYNAMIC HEAD	THK	THICK, THICKNESS
TEMP	TEMPERATURE, TEMPORARY	TOC	TOP OF CONCRETE, TOP OF CURB
TESC	TEMPORARY EROSION SEDIMENTATION CONTROL	TP	TRAP PRIMER
THK	THICK, THICKNESS	TSS	TOTAL SUSPENDED SOLIDS
TOC	TOP OF CONCRETE, TOP OF CURB	TYP	TYPICAL
TP	TRAP PRIMER	UH	UNIT HEATER
TSS	TOTAL SUSPENDED SOLIDS	UV	ULTRAVIOLET
TYP	TYPICAL	V	VALVE, VENT, VOLT
UH	UNIT HEATER	VSS	VOLATILE SUSPENDED SOLIDS
UV	ULTRAVIOLET	VENT	VENTILATE
V	VALVE, VENT, VOLT	VERT	VERTICAL
VSS	VOLATILE SUSPENDED SOLIDS	VOL	VOLUME
VENT	VENTILATE	VTR	VENT THROUGH ROOF
VERT	VERTICAL	W	WATER, WEST, WIDTH
VOL	VOLUME	W/	WITH
VTR	VENT THROUGH ROOF	WC	WATER CLOSET
W	WATER, WEST, WIDTH	WS	WATER SURFACE, WATER SOFTENER
W/	WITH	WWF	WELDED WIRE FABRIC
WC	WATER CLOSET	WWTP	WASTEWATER TREATMENT PLANT
WS	WATER SURFACE, WATER SOFTENER	W1	POTABLE WATER
WWF	WELDED WIRE FABRIC	W2	NON POTABLE WATER
WWTP	WASTEWATER TREATMENT PLANT	YD	YARD
W1	POTABLE WATER	YCO	YARD CLEAN OUT
W2	NON POTABLE WATER		
YD	YARD		
YCO	YARD CLEAN OUT		

PIPE AND FITTING SYMBOLS:

	FLANGE
	MECHANICAL
	PUSH ON OR BELL AND SPIGOT
	WELDED
	GROOVED COUPLING
	GROOVED END FLANGE ADAPTER
	RESTRAINED COUPLING
	FLANGED COUPLING ADAPTER
	RUBBER EXPANSION JOINT
	UNION
	90° SHORT RADIUS ELBOW
	BEND-UP OR TOWARDS
	BEND-DOWN OR AWAY
	TEE
	TEE-UP OR TOWARDS
	TEE-DOWN OR AWAY
	WYE OR LATERAL
	REDUCER-CONCENTRIC (PLAN AND ELEVATION)
	REDUCER-ECCENTRIC (ELEVATION)
	TRAP PRIMER
	REDUCING FLANGE
	BLIND FLANGE
	CAP
	PLUG
	BUTTERFLY VALVE
	CHECK VALVE
	GATE VALVE
	HOSE BIB
	AIR RELEASE VALVE

HVAC SYMBOLS:

	DUCT (SIZE IN INCHES, INSIDE CLEAR DIMENSIONS).
	THERMOSTAT
	MOTOR OPERATED
	DIRECTION OF AIRFLOW
	UNIT HEATER
	SUPPLY GRILLE

PIPING DESIGNATIONS:

NOMINAL SIZE	PIPING SYSTEM, SEE ABBREVIATIONS
18"FE	SOMETIMES SHOWN WITHOUT BUBBLE FOR CLARITY
XXXXXX	PIPE MATERIAL

EQUIPMENT DESIGNATIONS:

P-461	SEQUENTIAL AND/OR RELATED TO MAJOR EQUIPMENT
	EQUIPMENT TYPE

GENERAL NOTES:

- THIS IS A STANDARD LEGEND, THEREFORE NOT ALL OF THIS INFORMATION MAY BE USED ON THIS PROJECT. CONTACT THE ENGINEER FOR SYMBOLS, LEGENDS AND ABBREVIATIONS NOT LISTED. EACH DISCIPLINE HAS A SPECIFIC LEGEND.
- 1 REFERS TO KEY NOTES IDENTIFIED ON INDIVIDUAL SHEETS.
- INSTRUMENTATION AND PANEL MOUNTING HEIGHTS SHOWN ARE APPROXIMATE.

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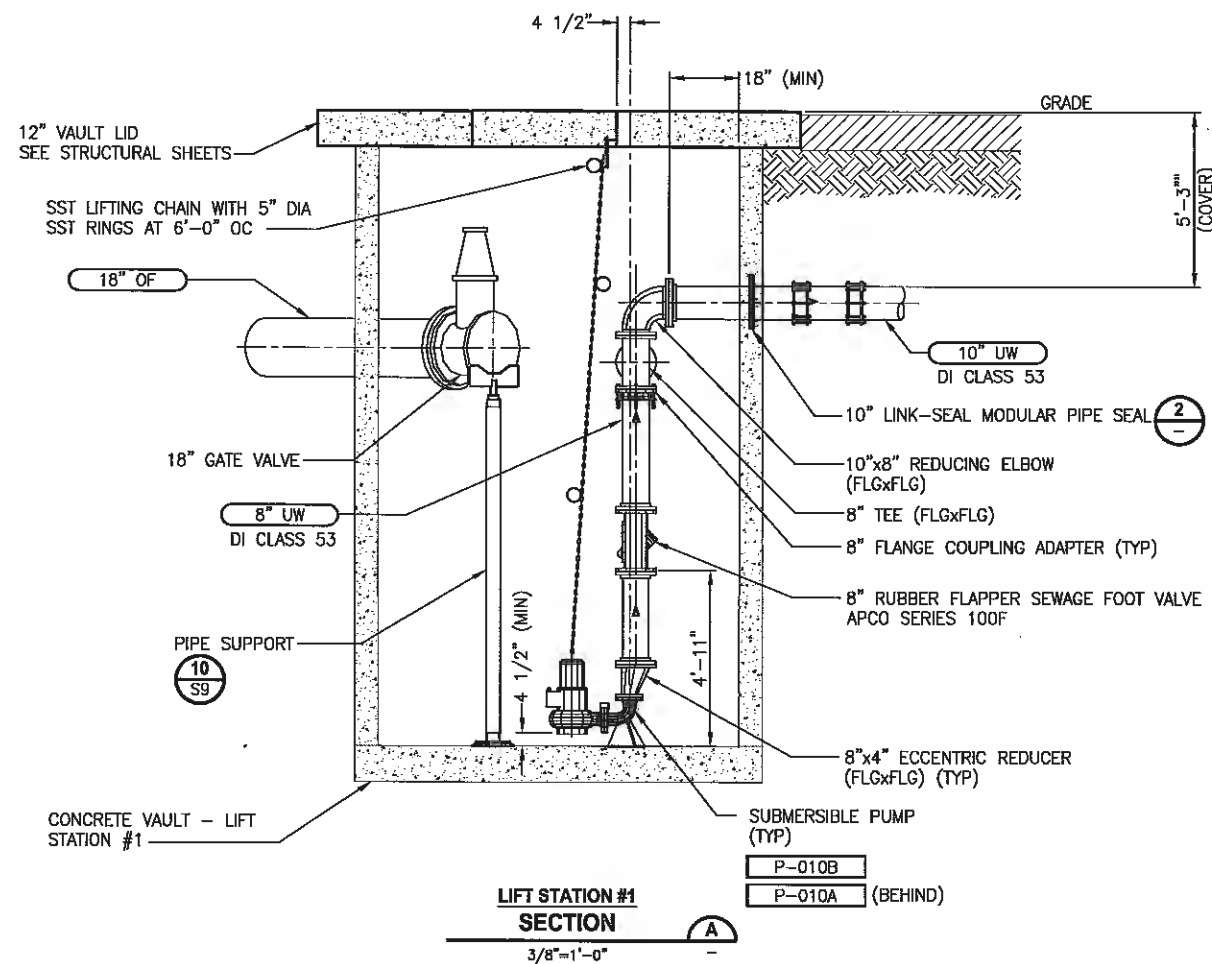
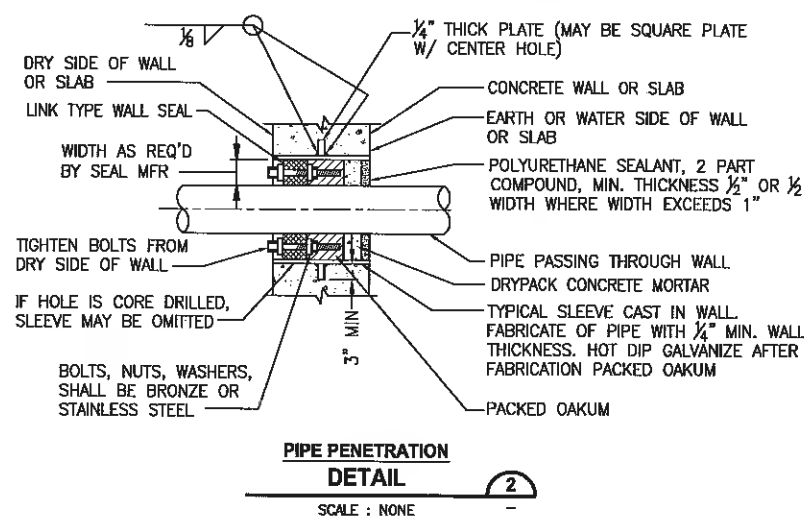
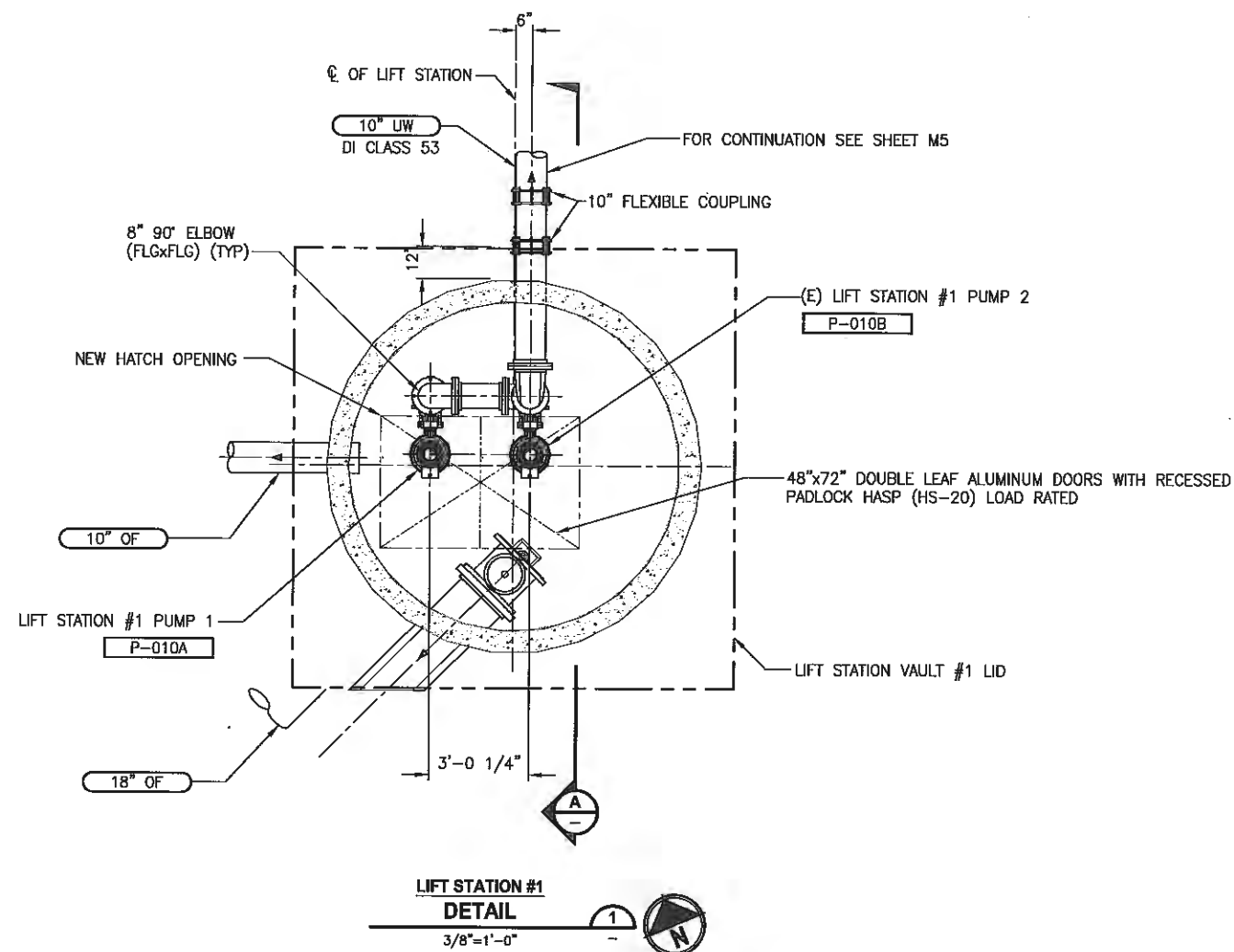
PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

MECHANICAL LEGEND AND NOTES
DRAWING NO.
33 OF 72
M1

**REVISED TO CONFORM WITH
CONSTRUCTION RECORDS**
DATE: 08/26/12 BY: BTH

NOTES:

- ALL EXPOSED STEEL AND HARDWARE IN VAULT 316L STAINLESS STEEL UNLESS NOTED OTHERWISE.



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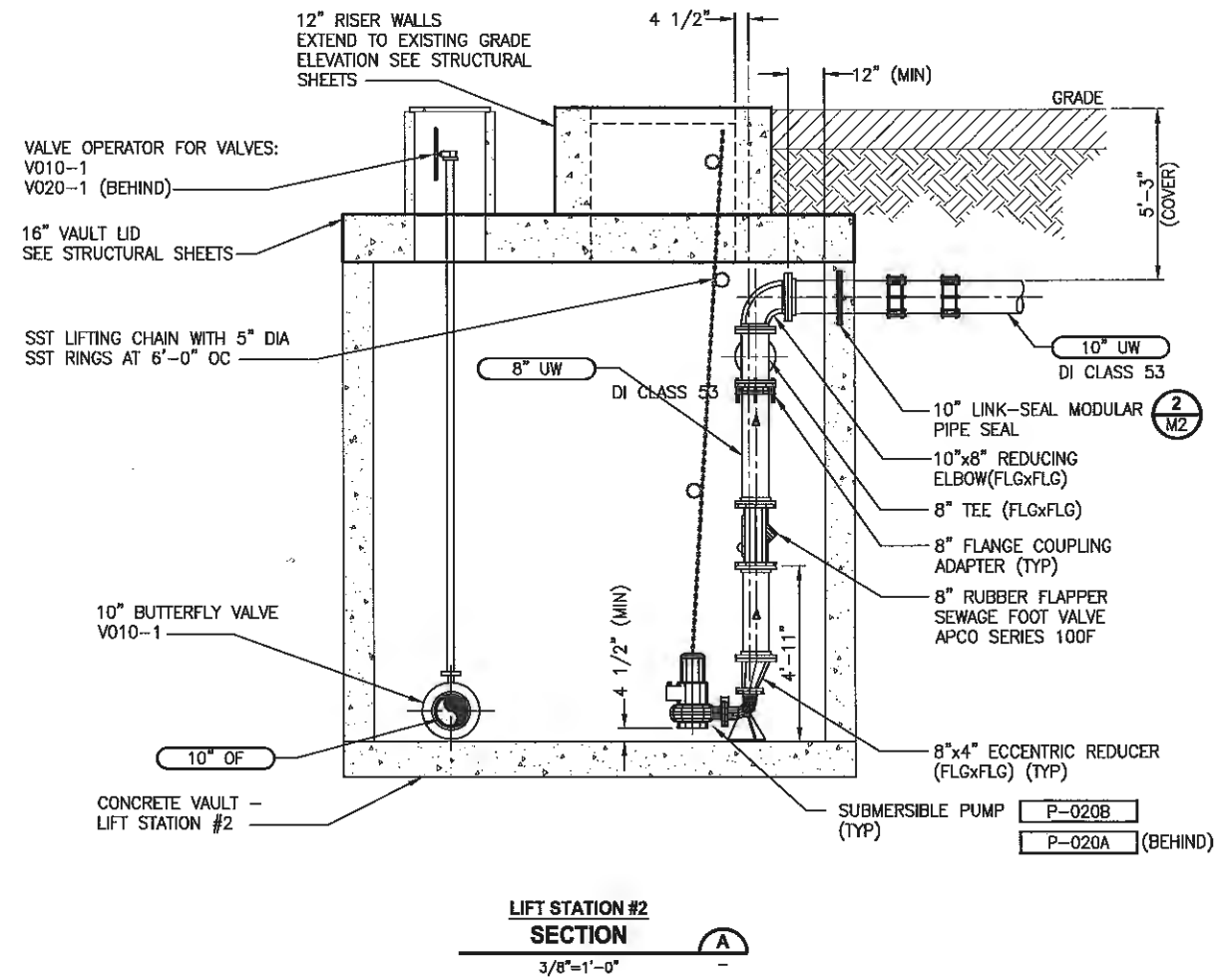
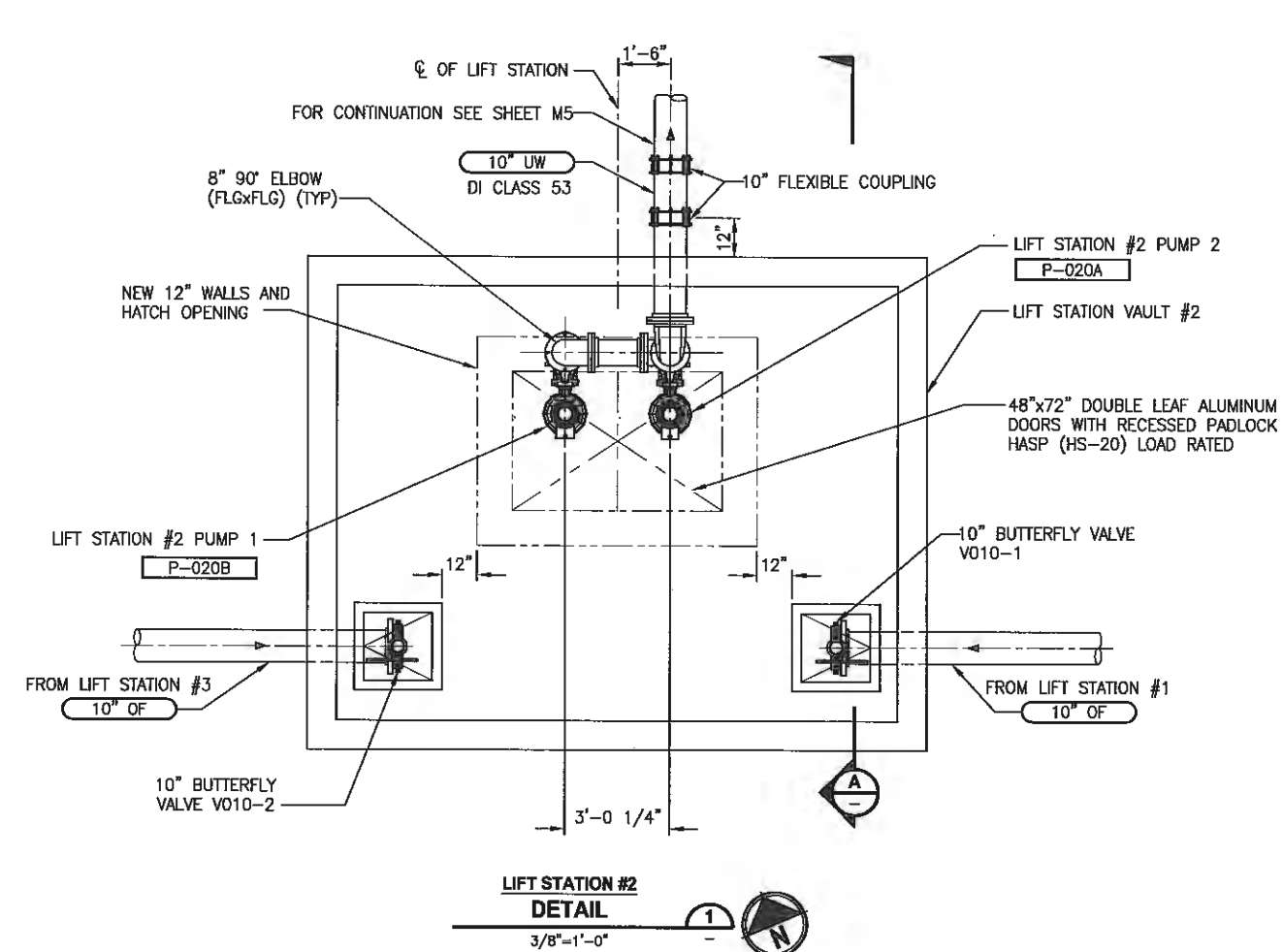
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**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

LIFT STATION #1 PLAN AND SECTION

DRAWING NO.
34 OF 72
M2

NOTES:

- ALL EXPOSED STEEL AND HARDWARE IN VAULT 316L STAINLESS STEEL UNLESS NOTED OTHERWISE.



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SCHNITZER STEEL

STORMWATER IMPROVEMENTS

TACOMA, WASHINGTON

LIFT STATION #2 PLAN AND SECTION

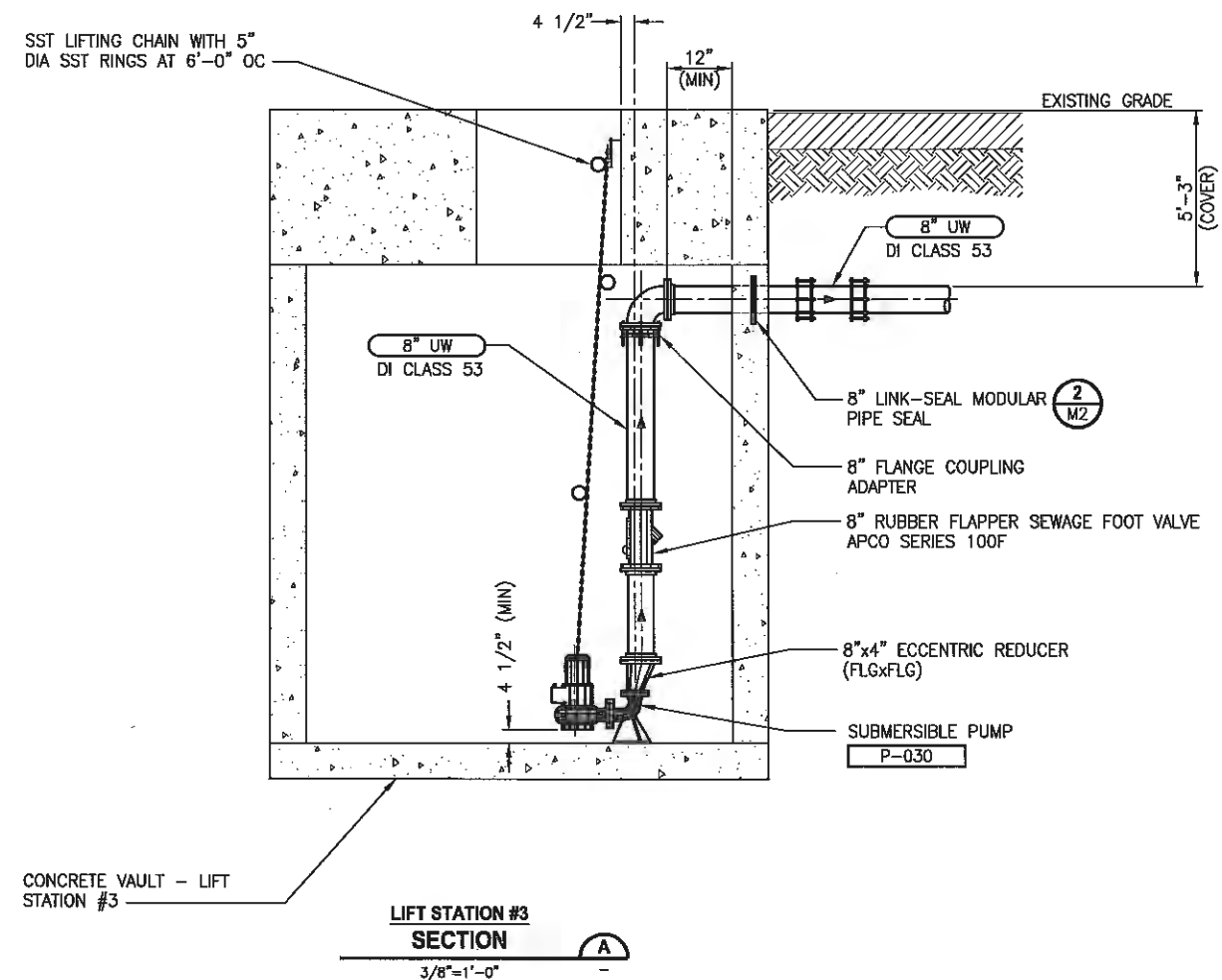
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M3

1. ALL EXPOSED STEEL AND HARDWARE IN VAULT 316L STAINLESS STEEL UNLESS NOTED OTHERWISE.




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M4

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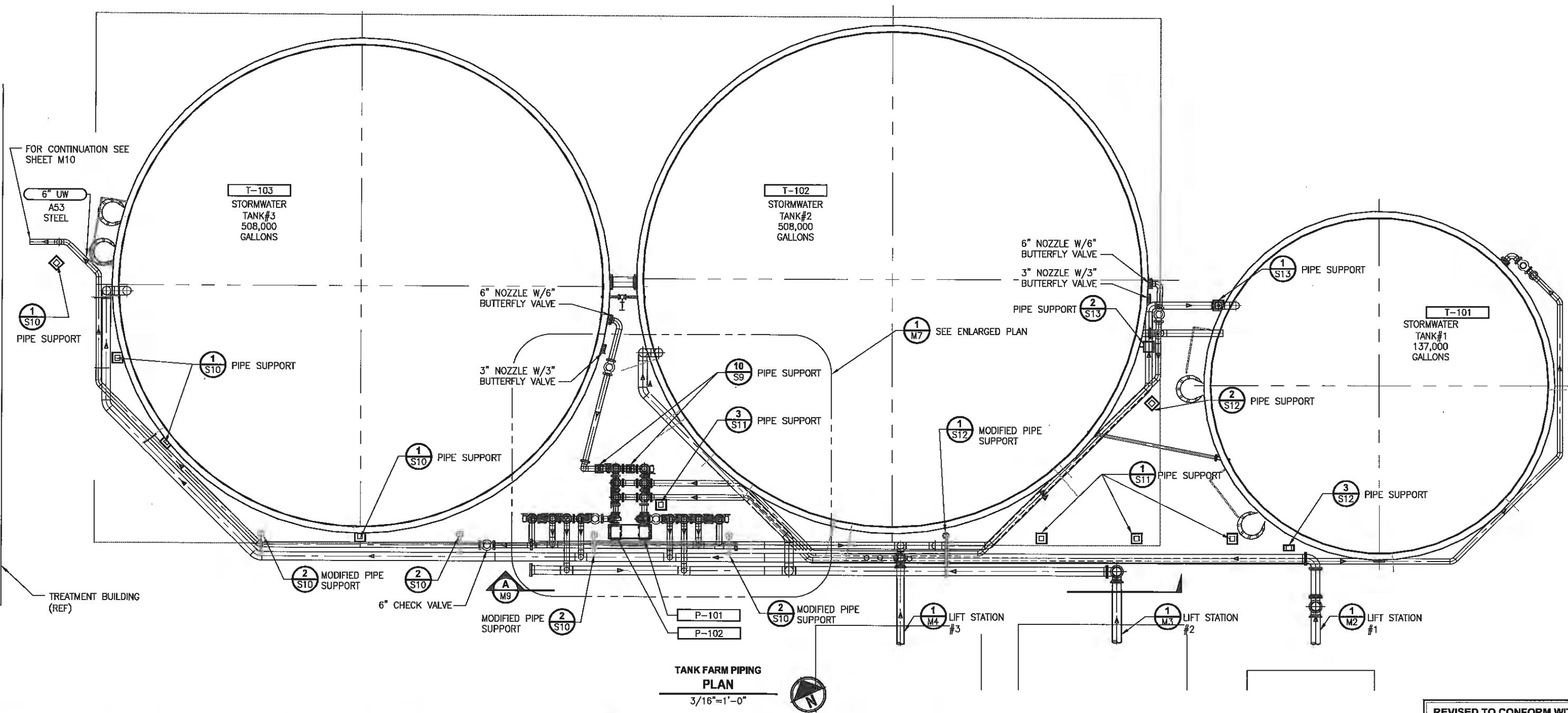
SCHNITZER STEEL STORMWATER IMPROVEMENTS

TACOMA, WASHINGTON

LIFT STATION #3 PLAN AND SECTION

NOTES:

1. ALL FASTENERS STAINLESS STEEL.
2. ALL OUTDOOR PIPING INSULATED AND ALUMINUM JACKETED, ALL VALVES HAVE INSULATION BLANKETS. NOT SHOWN FOR CLARITY.
3. SADDLE PROTECTION AT EACH SUPPORT AND EXISTING CLIP SEE DETAIL-3 SHEET S9.
4. ALL PIPING SUPPORTED WITH C CHANNEL ATTACHED PER DETAIL-7 SHEET S9.



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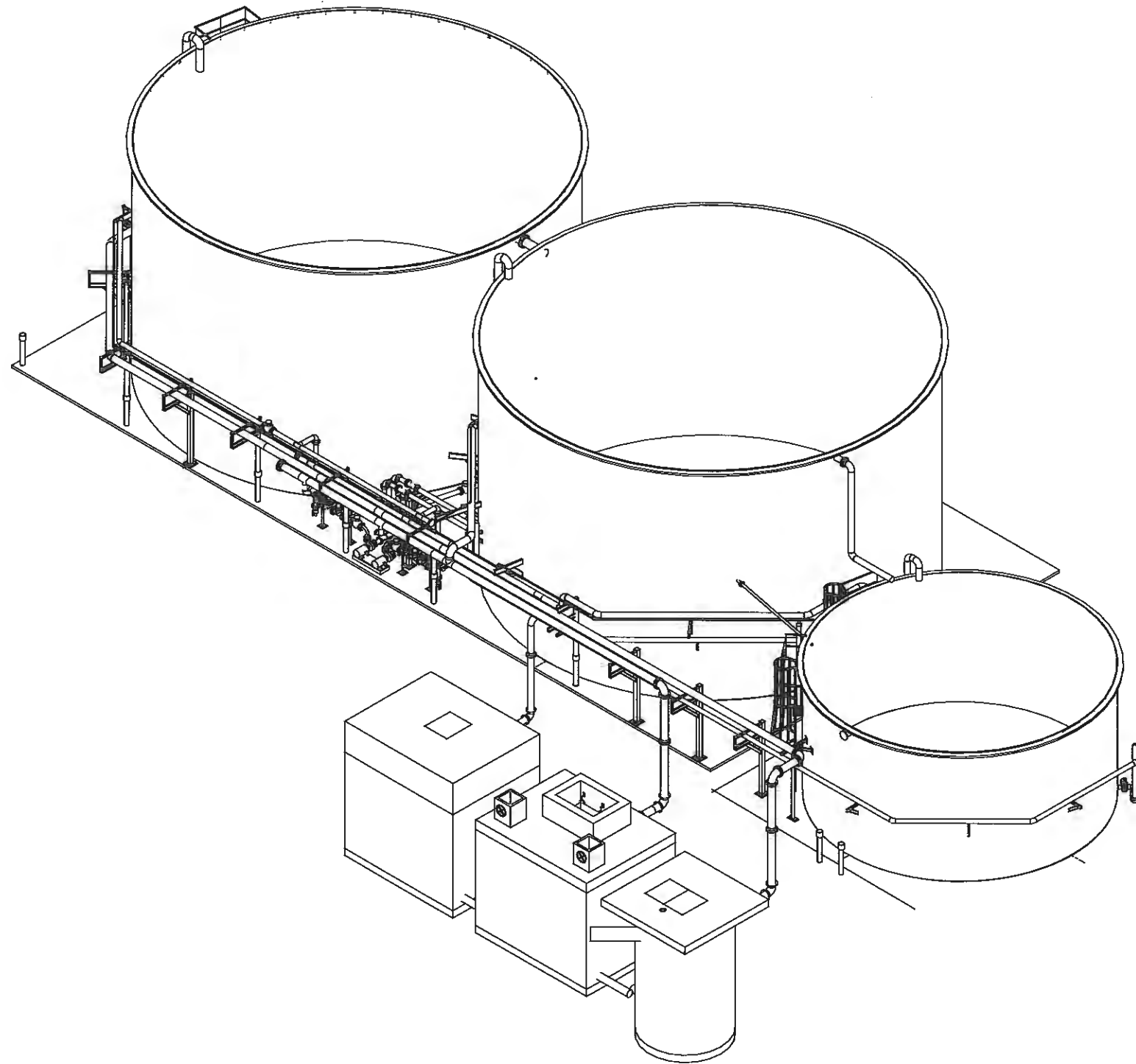
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TANK FARM PIPING PLAN

DRAWING NO.
37 OF 72

M5

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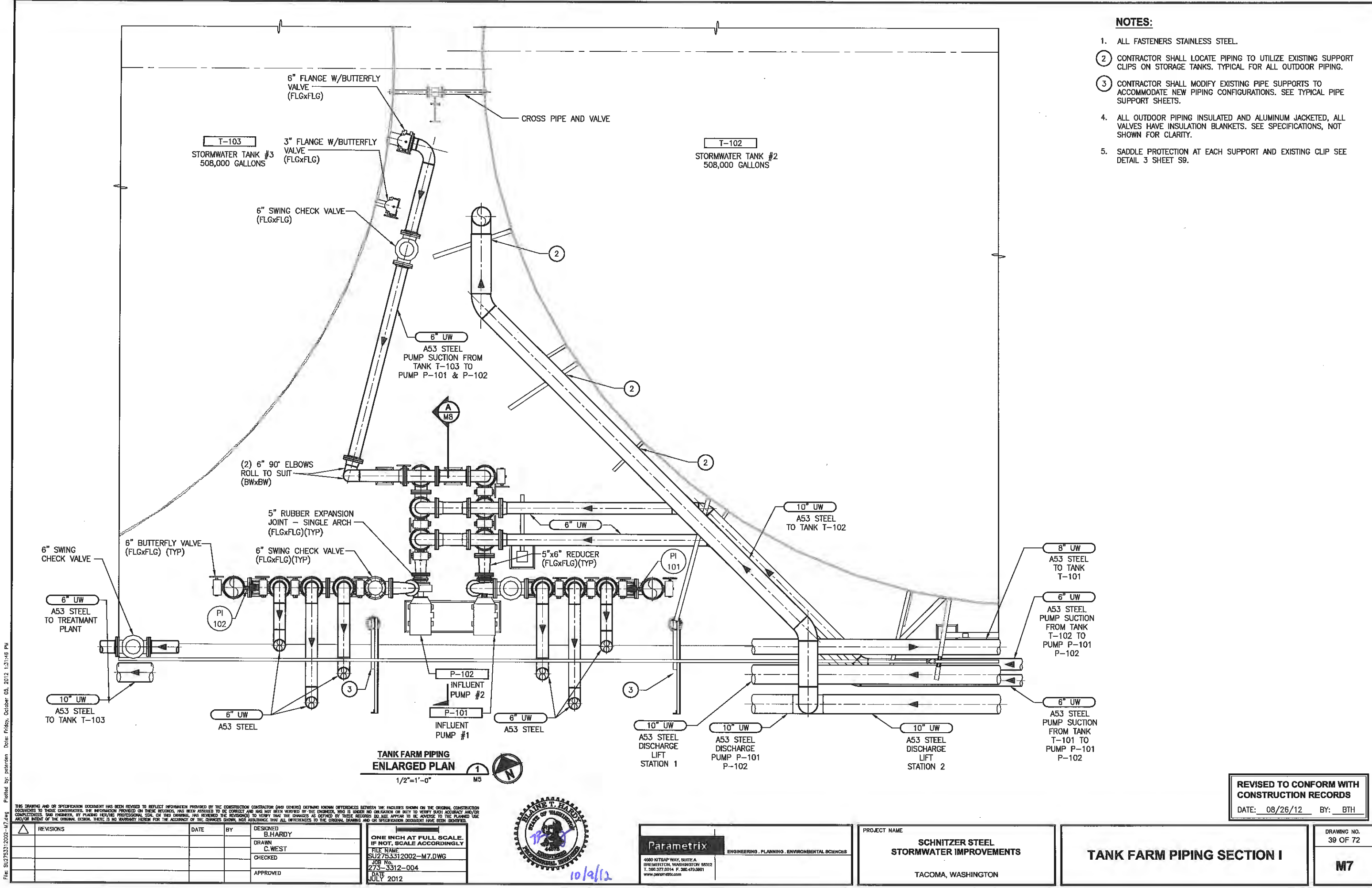
DATE: 08/26/12 BY: BTH

DRAWING NO.
38 OF 72

M6

NOTES:

- 1. ALL FASTENERS STAINLESS STEEL.
- 2. CONTRACTOR SHALL LOCATE PIPING TO UTILIZE EXISTING SUPPORT CLIPS ON STORAGE TANKS. TYPICAL FOR ALL OUTDOOR PIPING.
- 3. CONTRACTOR SHALL MODIFY EXISTING PIPE SUPPORTS TO ACCOMMODATE NEW PIPING CONFIGURATIONS. SEE TYPICAL PIPE SUPPORT SHEETS.
- 4. ALL OUTDOOR PIPING INSULATED AND ALUMINUM JACKETED, ALL VALVES HAVE INSULATION BLANKETS. SEE SPECIFICATIONS, NOT SHOWN FOR CLARITY.
- 5. SADDLE PROTECTION AT EACH SUPPORT AND EXISTING CLIP SEE DETAIL 3 SHEET S9.



File: SU2753312002-M7.dwg
Plotted by: pefanden
Date: Friday, October 05, 2012 1:31:46 PM

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						C. WEST
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						APPROVED

ONE INCH AT FULL SCALE.
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PROJECT NAME

**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**

TACOMA, WASHINGTON

TANK FARM PIPING SECTION I

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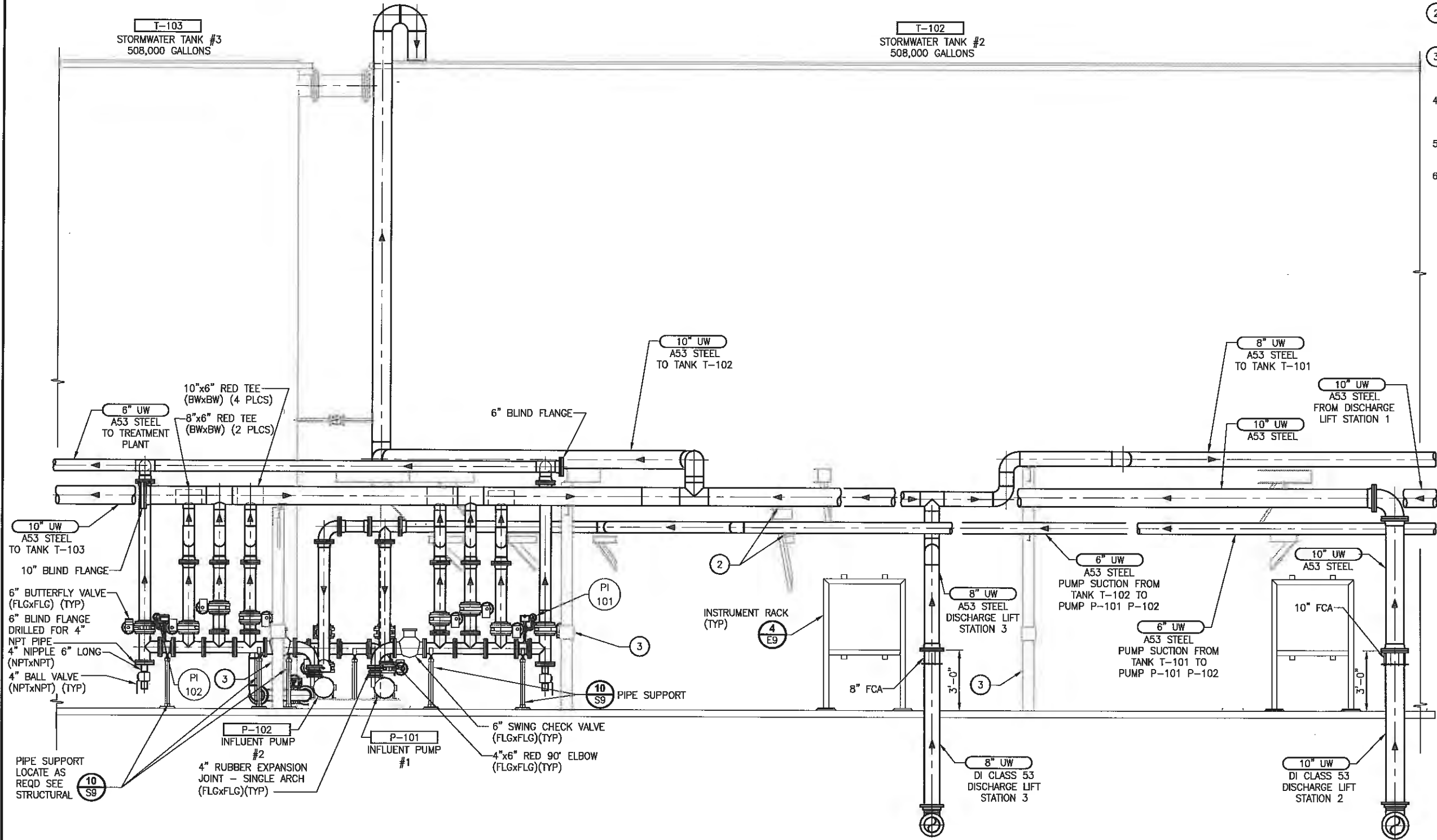
DATE: 08/26/12 BY: BTH

DRAWING NO.
39 OF 72

M7

NOTES:

1. ALL FASTENERS STAINLESS STEEL
2. CONTRACTOR SHALL LOCATE PIPING TO UTILIZE EXISTING SUPPORT CLIPS ON STORAGE TANKS. TYPICAL FOR ALL OUTDOOR PIPING.
3. CONTRACTOR SHALL MODIFY EXISTING PIPE SUPPORTS TO ACCOMMODATE NEW PIPING CONFIGURATIONS. SEE TYPICAL PIPE SUPPORT SHEETS.
4. ALL OUTDOOR PIPING INSULATED AND ALUMINUM JACKETED, ALL VALVES HAVE INSULATION BLANKETS. SEE SPECIFICATIONS, NOT SHOWN FOR CLARITY.
5. SADDLE PROTECTION AT EACH SUPPORT AND EXISTING CLIP SEE DETAIL 3 SHEET S9.
6. CONTRACTOR SHALL LOCATE DISASSEMBLY FLANGE PAIRS AS REQUIRED FOR EASE OF ASSEMBLY/DISASSEMBLY, NOT SHOWN FOR CLARITY.



TANK FARM PIPING

SECTION

3/8\"=1'-0"

A
M5



6/9/12

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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**

TACOMA, WASHINGTON

TANK FARM PIPING SECTION III

DRAWING NO.
41 OF 72

M9

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File: SU2753312002-M9.dwg Plotted by: psteren Date: Friday, October 05, 2012 1:32:21 PM

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			APPROVED

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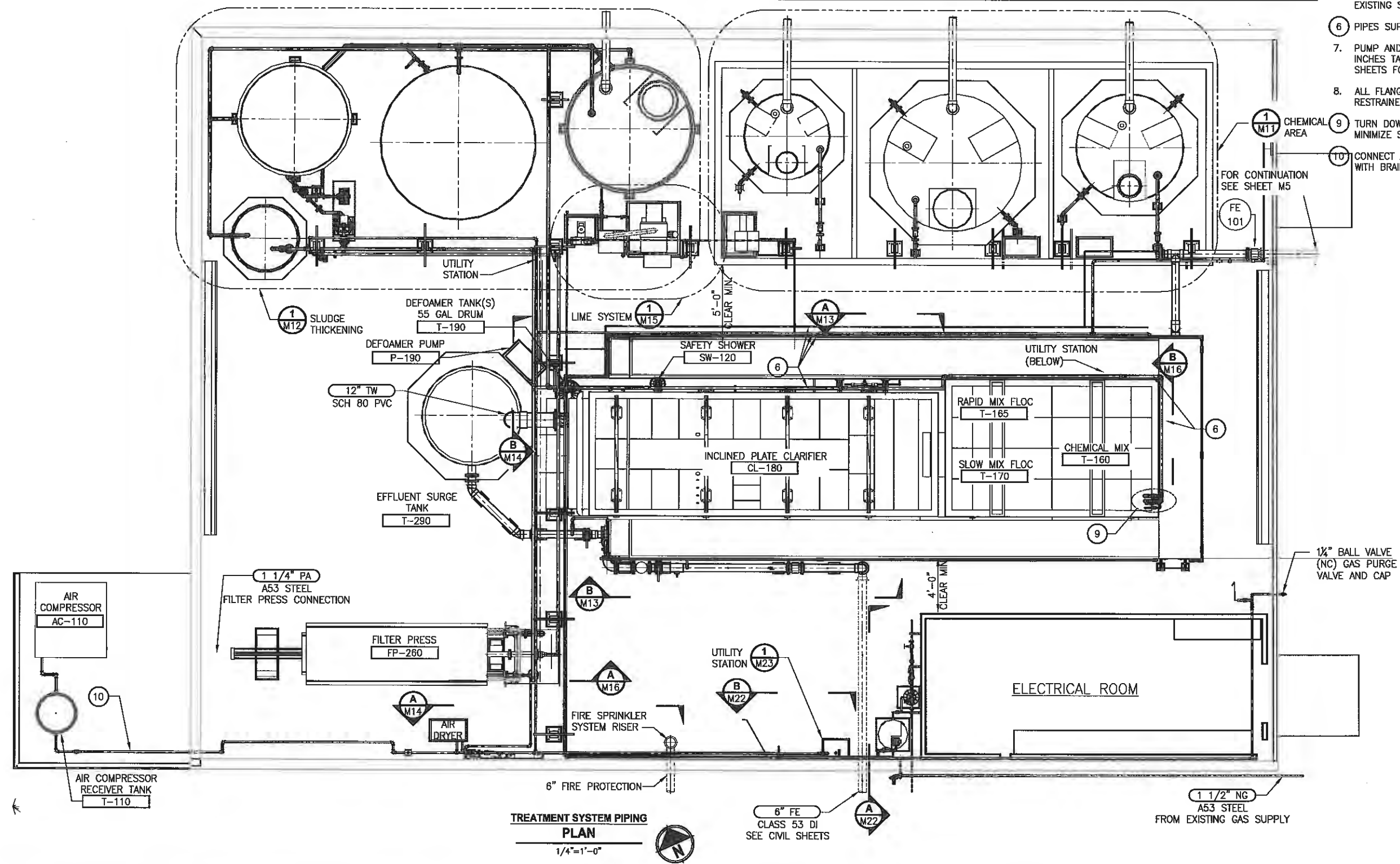
FILE NAME
SU2753312002-M9.DWG

JOB No.
273-3312-004

DATE
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MIXER SCHEDULE						
TANK ID	EQUIPMENT ID	MIXER ID	PROCESS	MOUNTING LOCATION	FUNCTION	REMARKS
T-160	CL-180	MX-180	CHEMICAL MIX	TOP	MIXER	SEE NOTE 19
T-165	CL-180	MX-165	RAPID MIX FLOC	TOP	MIXER	SEE NOTE 19
T-170	CL-180	MX-170	SLOW MIX FLOC	TOP	MIXER	SEE NOTE 19
CL-180	CL-180	MX-180	CLARIFIER SLUDGE RUNNING	SIDE	RAKE	
T-270A		MX-270A	LIME SLURRY	SIDE	MIXER	
T-270A		MX-270B	LIME SLURRY	SIDE	MIXER	

- NOTES:**
- ALL FASTENERS STAINLESS STEEL
 - ALL STRUT AND STRUT HARDWARE FACTORY GALVANIZED.
 - CONTRACTOR SHALL LOCATE UNIONS AS REQUIRED FOR EASE OF ASSEMBLY/DISASSEMBLY, NOT ALL SHOWN FOR CLARITY.
 - INSTALL EXISTING SLUDGE THICKENING TANKS PROVIDING ACCESS TO EXISTING LADDERS AND CATWALKS (NOT SHOWN).
 - UP TO 4 INCHES OF NON-SHRINK LEVELING GROUT UNDER EXISTING SLUDGE TANKS, USING ORIGINAL ATTACHMENT POINTS.
 - PIPES SUPPORTED USING CLARIFIER ACCESS PLATFORM.
 - PUMP AND EQUIPMENT HOUSEKEEPING PADS A MINIMUM OF 4 INCHES TALL, UNLESS NOTED OTHERWISE. SEE STRUCTURAL SHEETS FOR CONSTRUCTION
 - ALL FLANGE COUPLING ADAPTERS AND FLEXIBLE COUPLINGS RESTRAINED W/TIE RODS. SEE SPECIFICATIONS.
 - TURN DOWN PIPES INTO CLARIFIER PAST LIP OF CLARIFIER TO MINIMIZE SPLASHING. USE CLARIFIER TO SUPPORT THESE PIPES.
 - CONNECT AIR COMPRESSOR AC-110 TO FIXED PIPE 1 1/4"-PA WITH BRAIDED STAINLESS STEEL HOSE. SEE SPECIFICATION.



File: S:\275331\2002-M10.dwg Plotted by: pstardan Date: Friday, October 05, 2012 1:32:47 PM

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PROJECT NAME

**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**

TACOMA, WASHINGTON

TREATMENT SYSTEM PIPING PLAN

M10

**REVISED TO CONFORM WITH
CONSTRUCTION RECORDS**

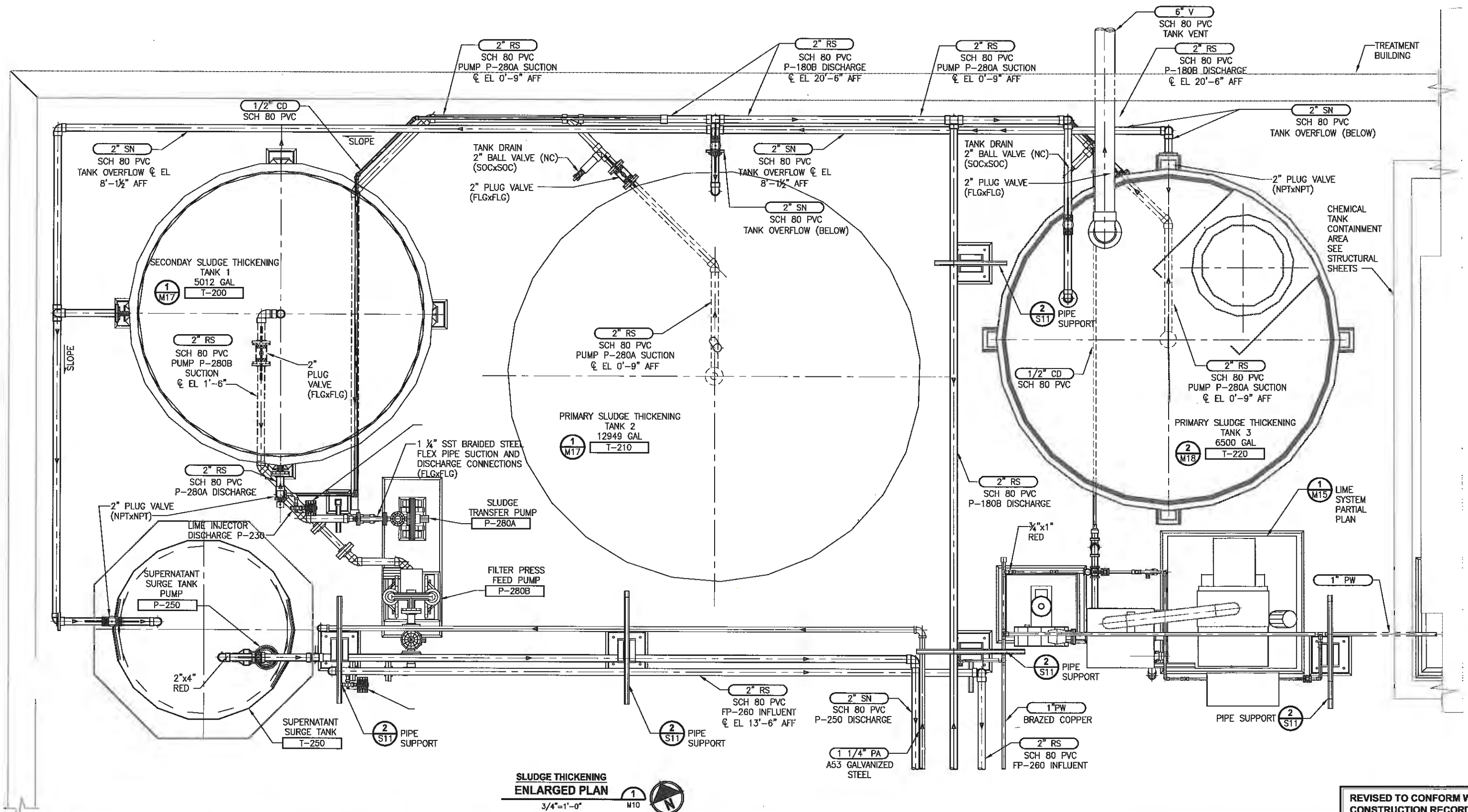
DATE: 08/26/12 BY: BTH

DRAWING NO.
42 OF 72

M10

NOTES:

- SEE SHEET M10 FOR ADDITIONAL NOTES.
- SLOPE 2" SW (TANK OVERFLOW) PIPING TO TANK T-250, 1% SLOPE MIN.



**SLUDGE THICKENING
ENLARGED PLAN**

3/4"=1'-0"



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PROJECT NAME
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STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

SLUDGE THICKENING AREA

DRAWING NO.
44 OF 72

M12

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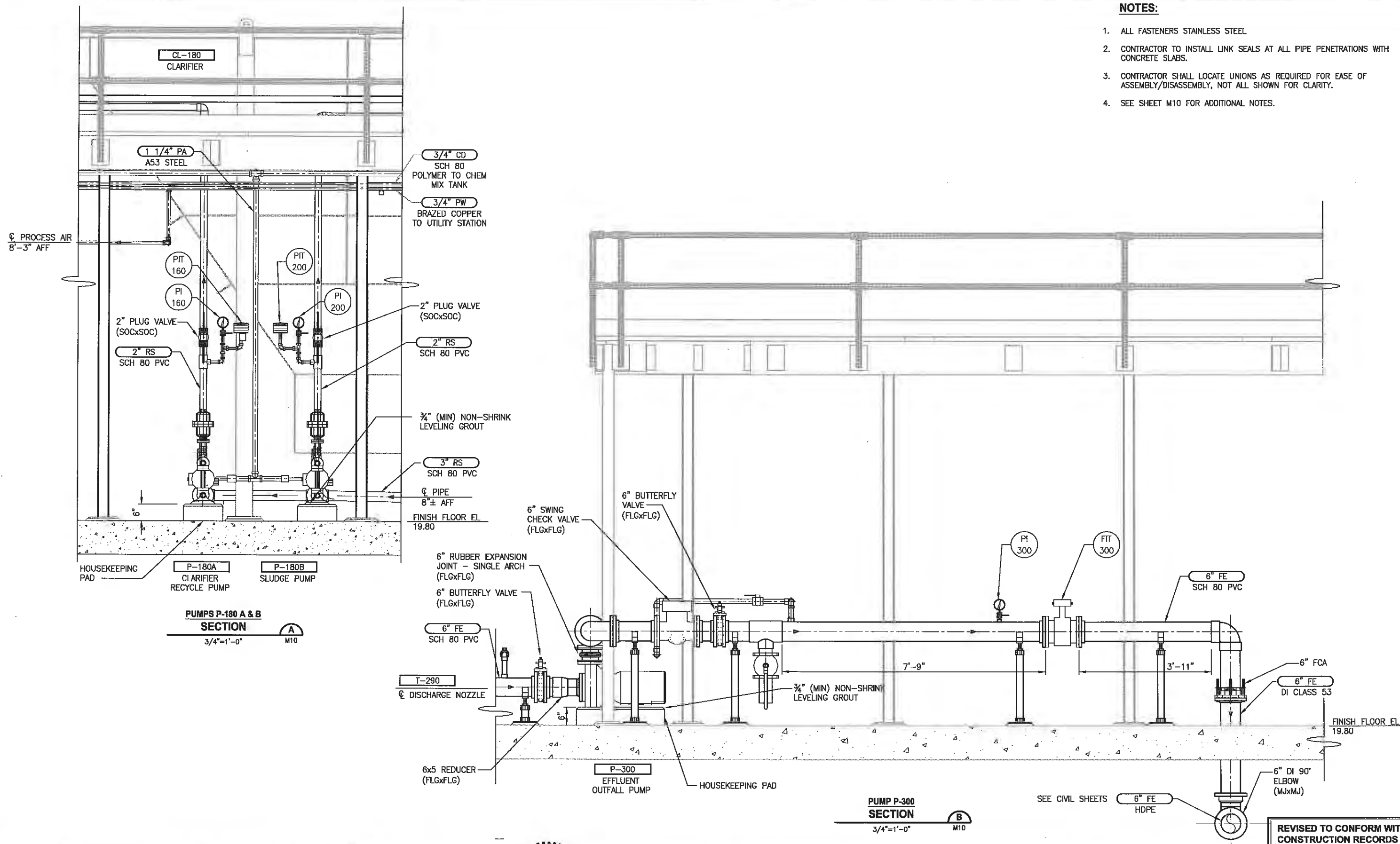
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FILE NAME
SU2753312002-M12.DWG
JOB No.
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NOTES:

1. ALL FASTENERS STAINLESS STEEL
2. CONTRACTOR TO INSTALL LINK SEALS AT ALL PIPE PENETRATIONS WITH CONCRETE SLABS.
3. CONTRACTOR SHALL LOCATE UNIONS AS REQUIRED FOR EASE OF ASSEMBLY/DISASSEMBLY, NOT ALL SHOWN FOR CLARITY.
4. SEE SHEET M10 FOR ADDITIONAL NOTES.



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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

**TREATMENT SYSTEM PIPING
SECTIONS AND DETAILS I**

DRAWING NO.
45 OF 72
M13

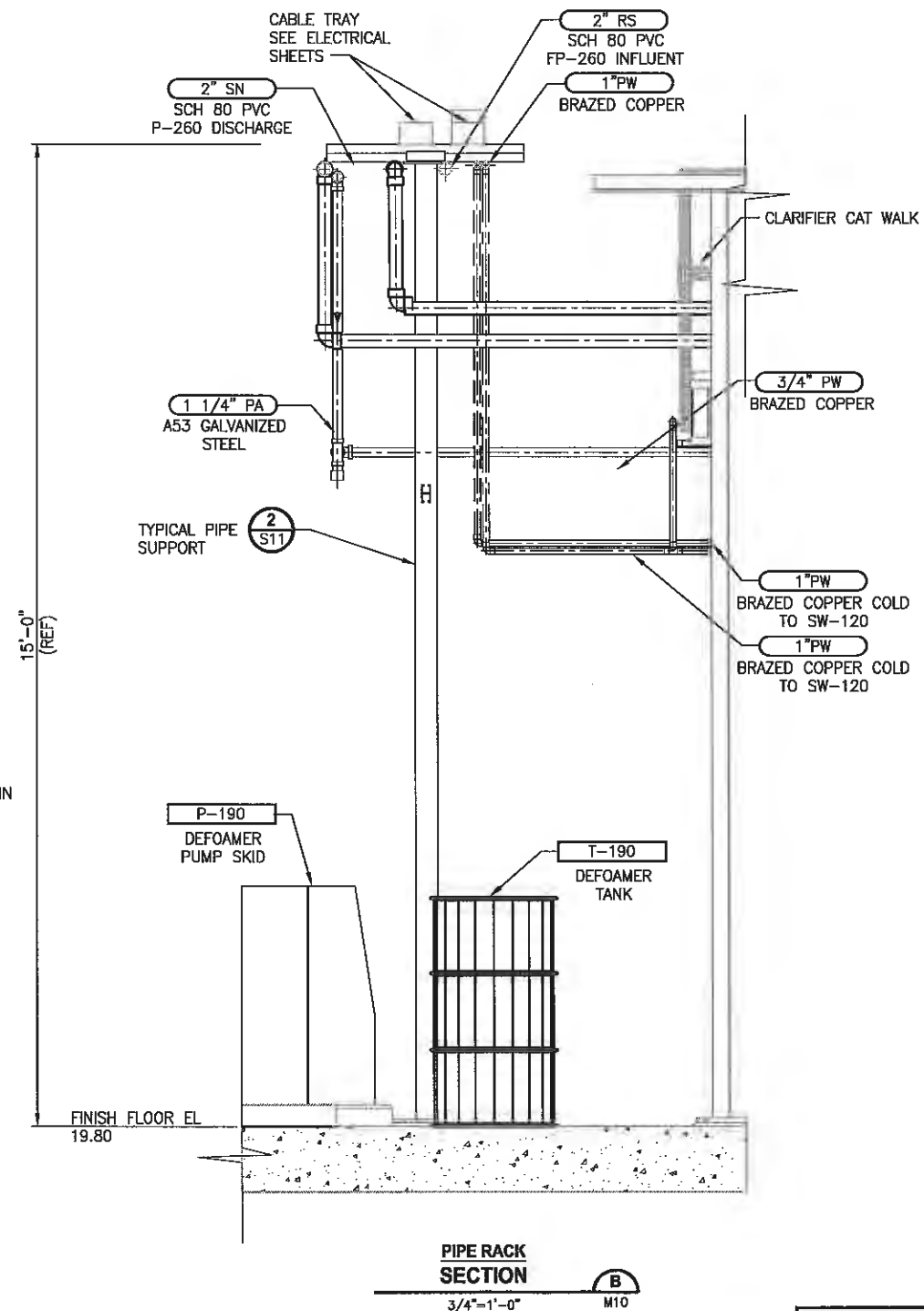
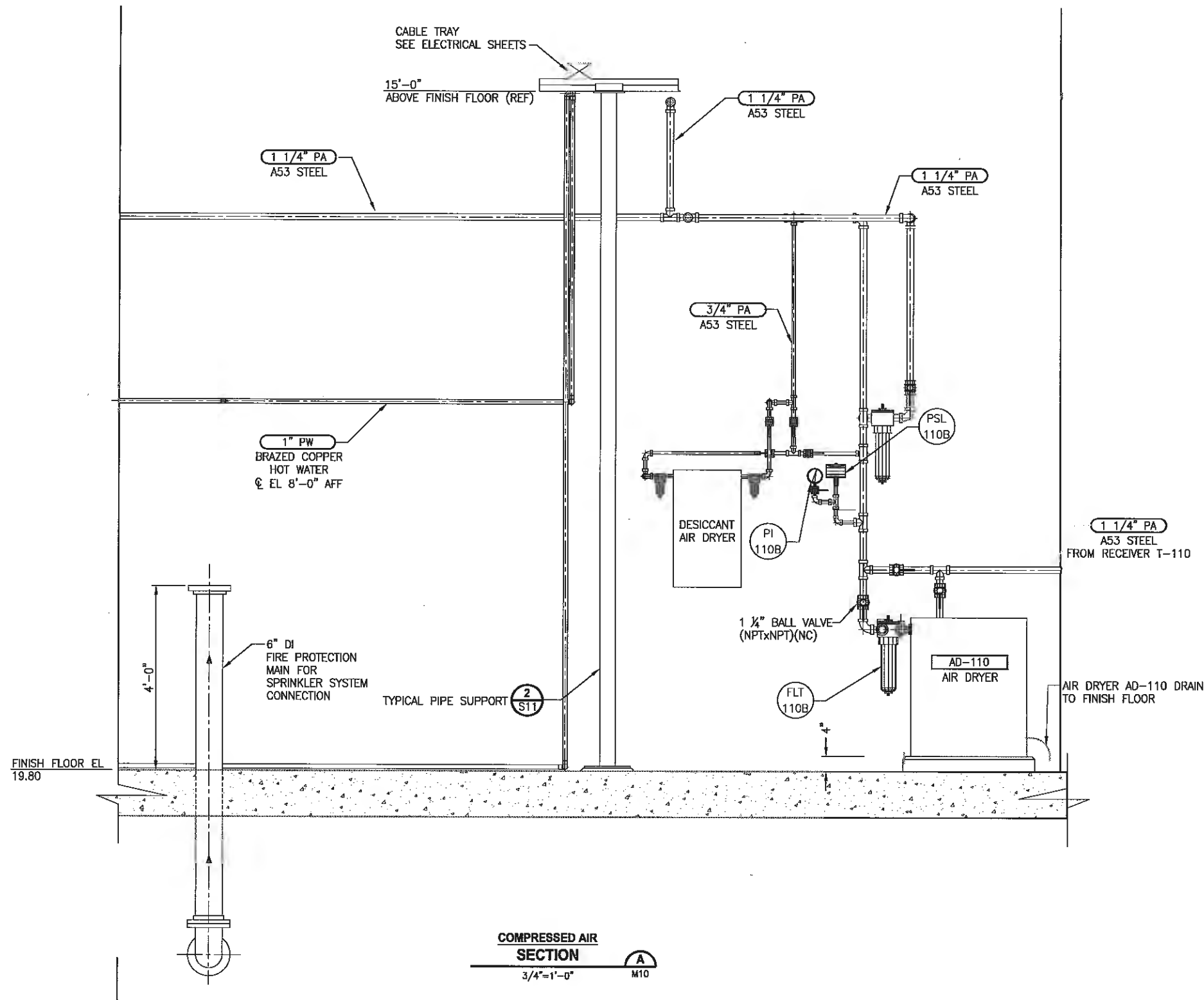
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NOTES:

- SEE SHEET M10 FOR ADDITIONAL NOTES
- SUPPORT PIPE USING CLARIFIER CATWALK FRAMING.



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PROJECT NAME
SCHNITZER STEEL
STORMWATER IMPROVEMENTS
TACOMA, WASHINGTON

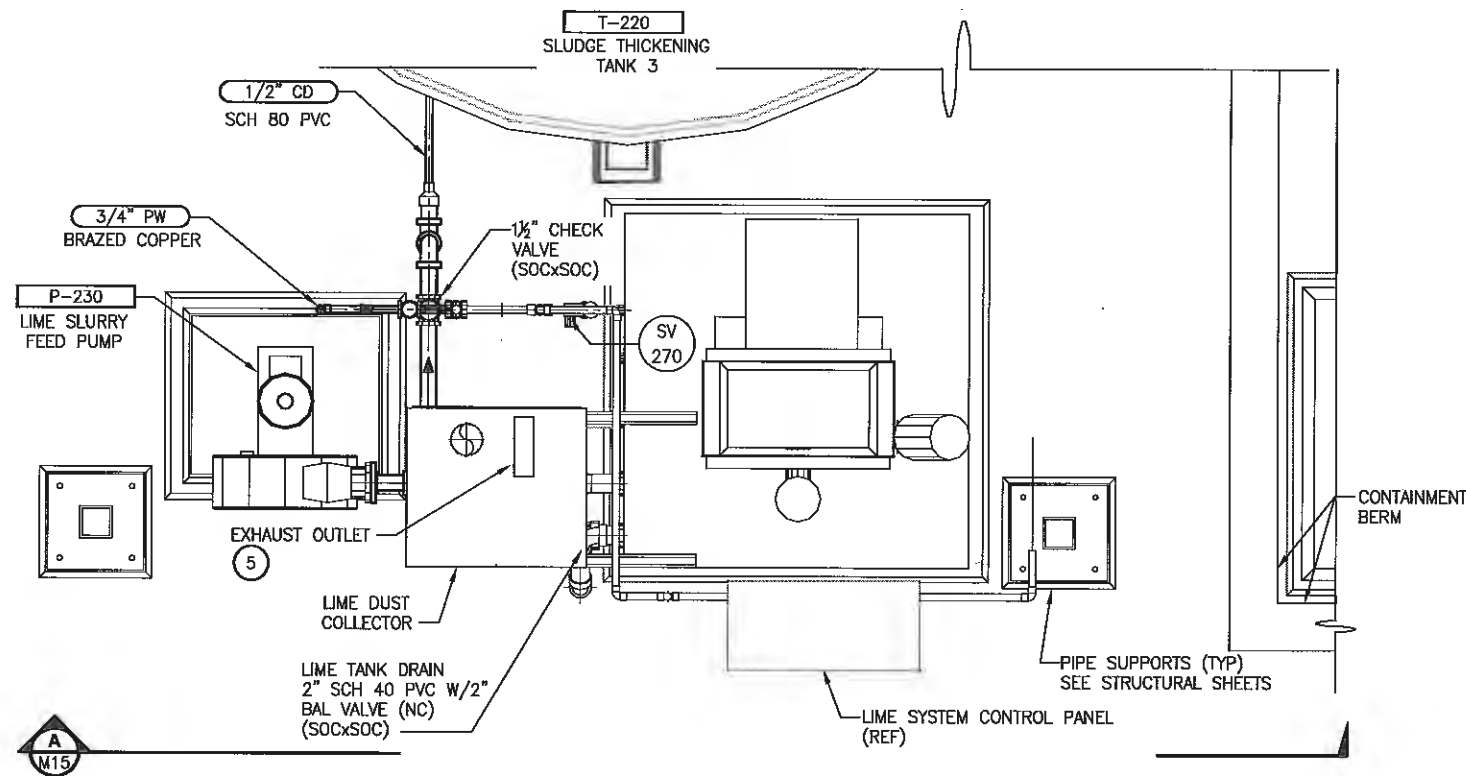
TREATMENT SYSTEM PIPING
SECTIONS AND DETAILS II

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DATE: 08/26/12 BY: BTH

DRAWING NO.
46 OF 72
M14

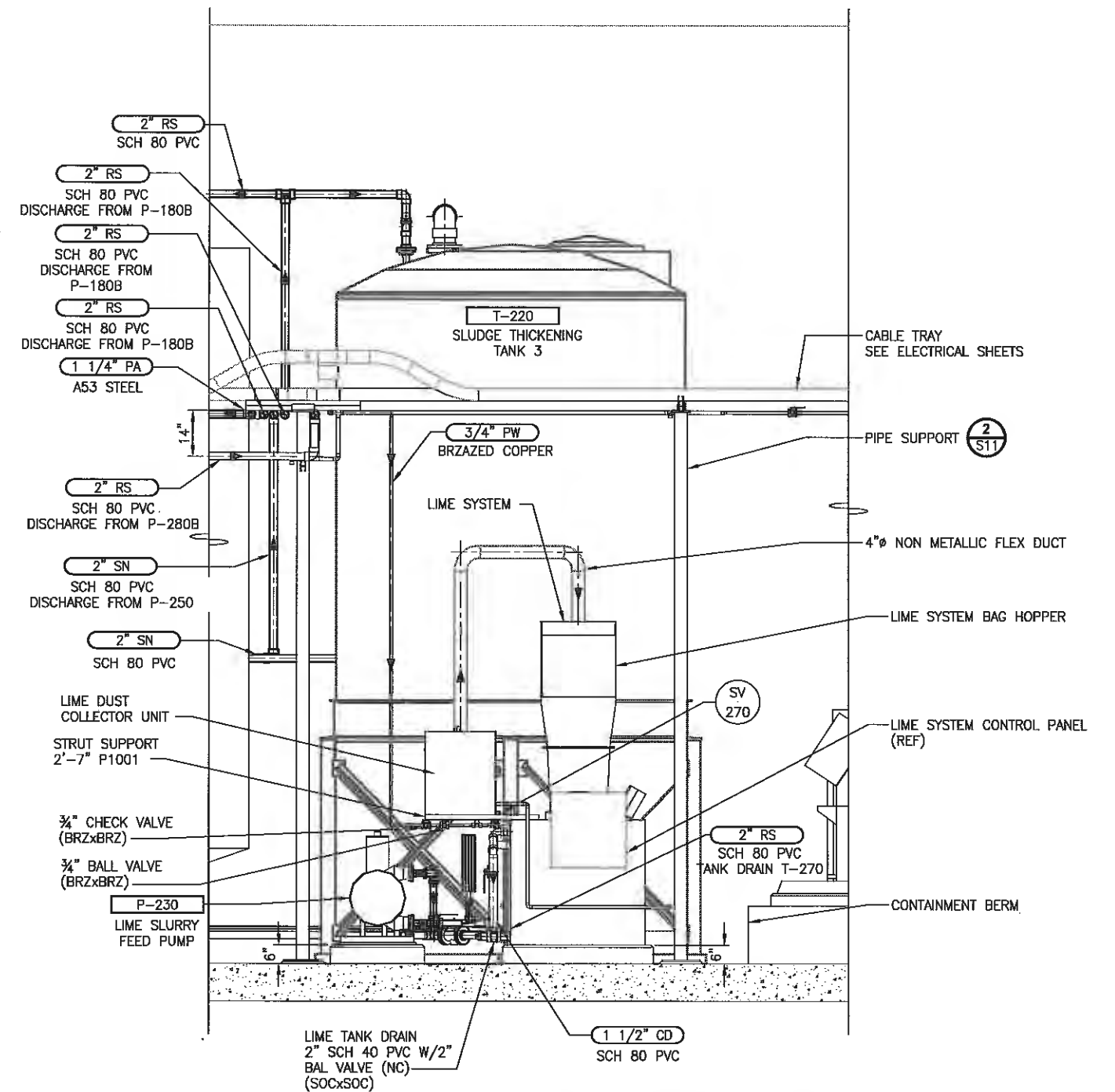
NOTES:

1. ALL FASTENERS STAINLESS STEEL
2. ALL SUPPORT STRUT AND BRACKETS FACTORY GALVANIZED.



LIME SYSTEM
PARTIAL PLAN

1\"/>



LIME SYSTEM
SECTION

1/2\"/>

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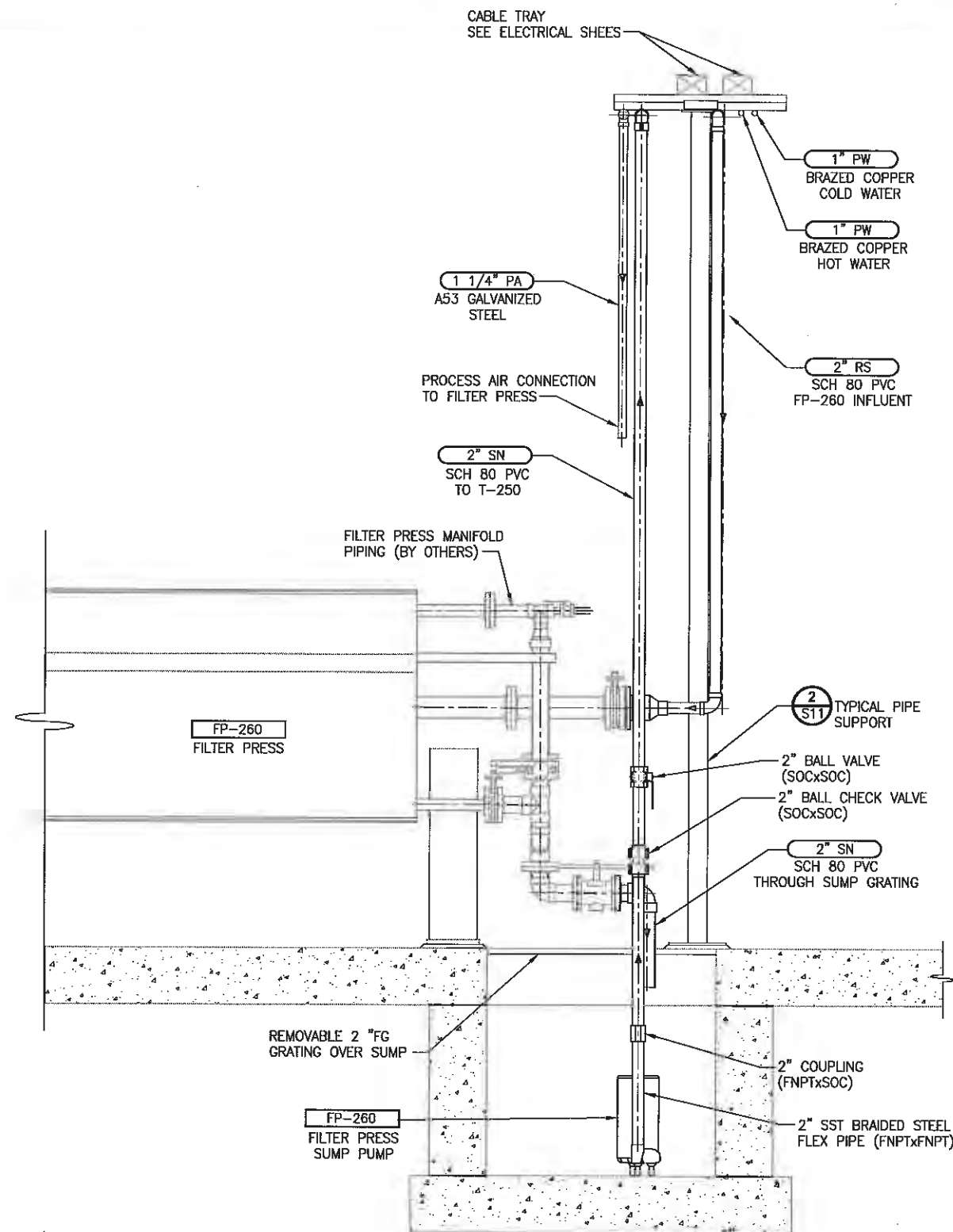
PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

**TREATMENT SYSTEM PIPING
SECTIONS AND DETAILS III**

DRAWING NO.
47 OF 72
M15

NOTES:

- SEE SHEET M10 FOR ADDITIONAL NOTES
- SUPPORT PIPE USING CLARIFIER CATWALK FRAMING.

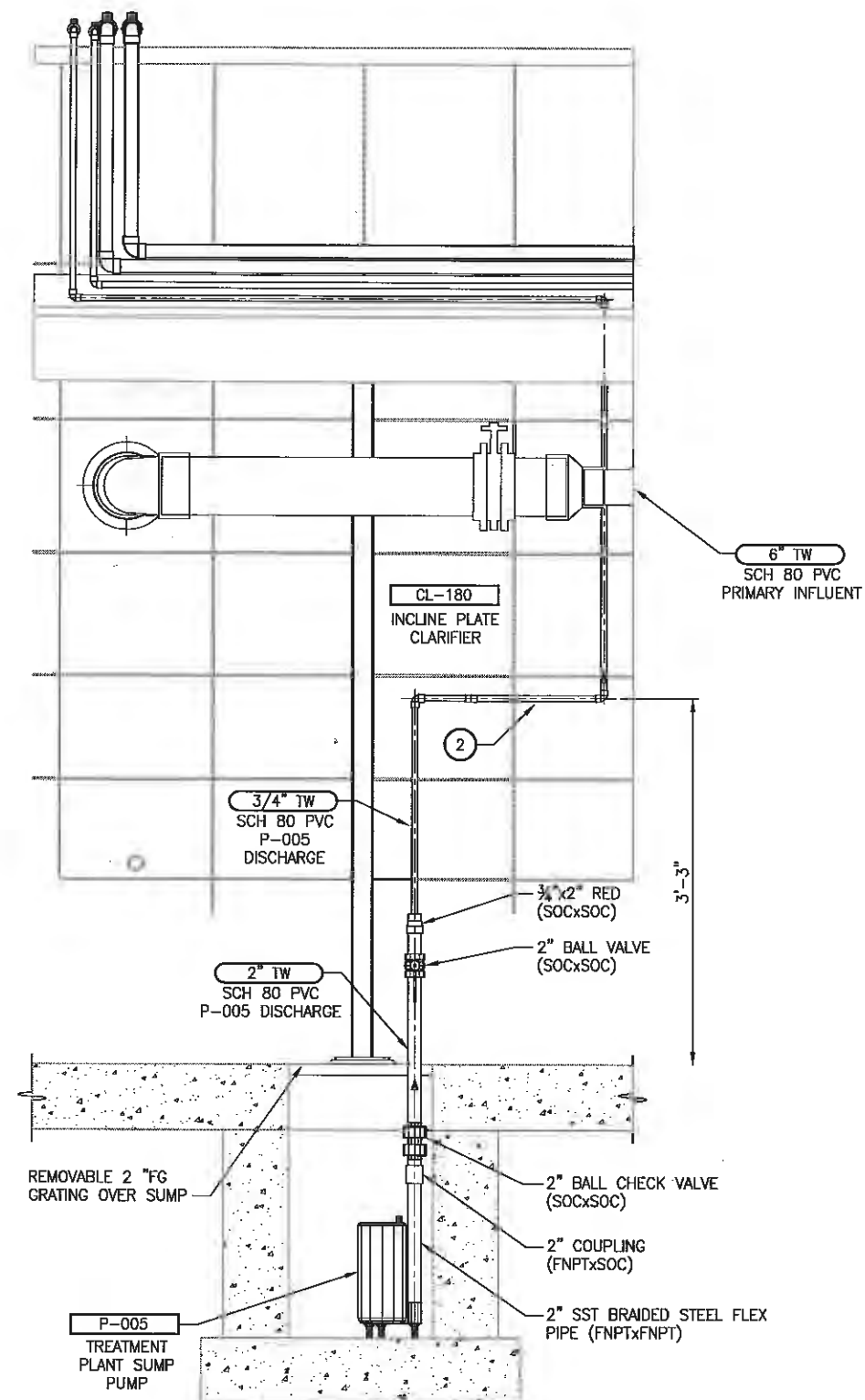


FILTER PRESS SUMP

SECTION A

3/4"=1'-0"

M10



TREATMENT PLANT SUMP
SECTION B

3/4"=1'-0"

M10



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PROJECT NAME
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TACOMA, WASHINGTON

TREATMENT SYSTEM PIPING SECTIONS AND DETAILS IV

DRAWING NO.
48 OF 72
M16

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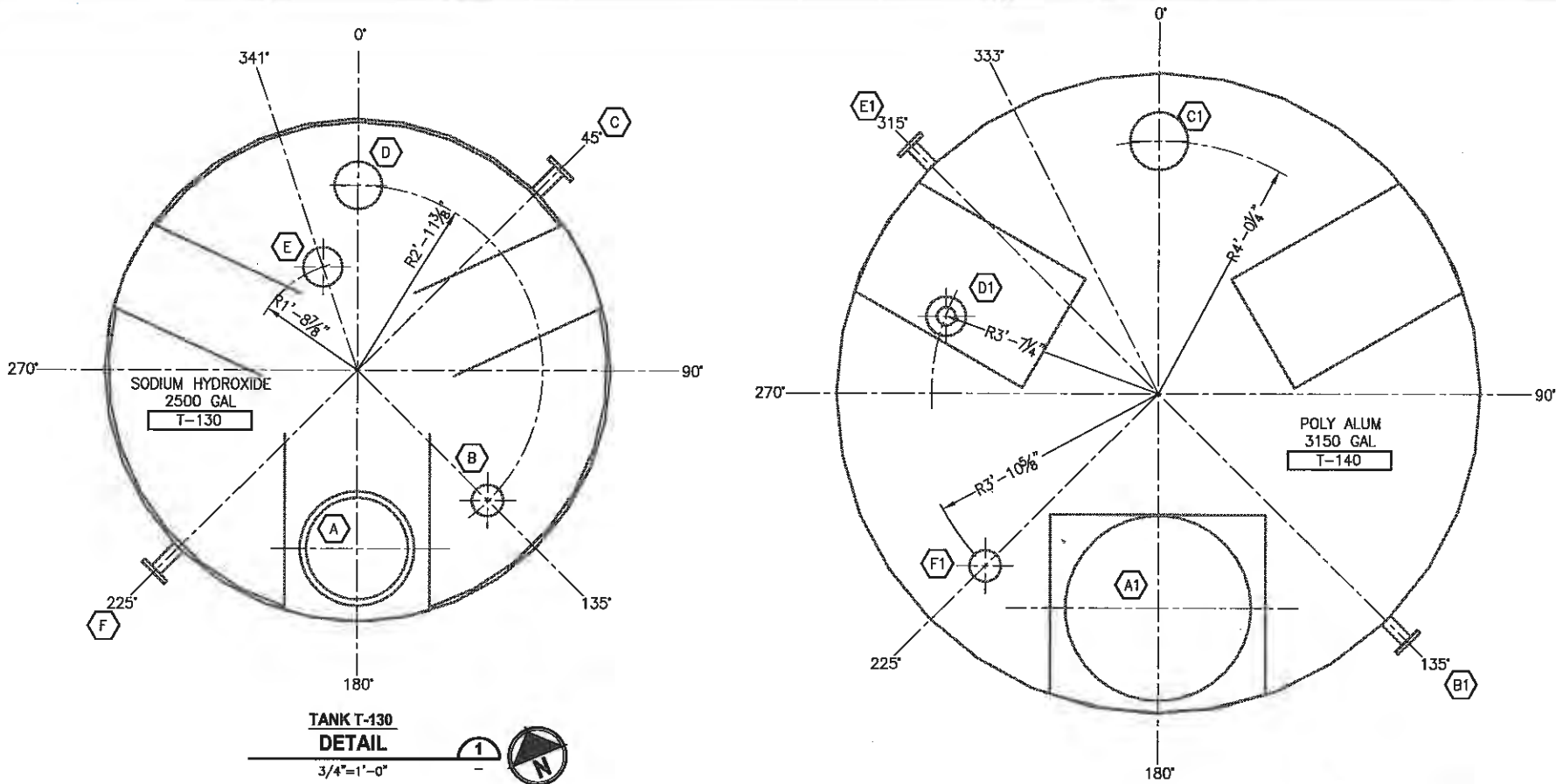
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NOTES:

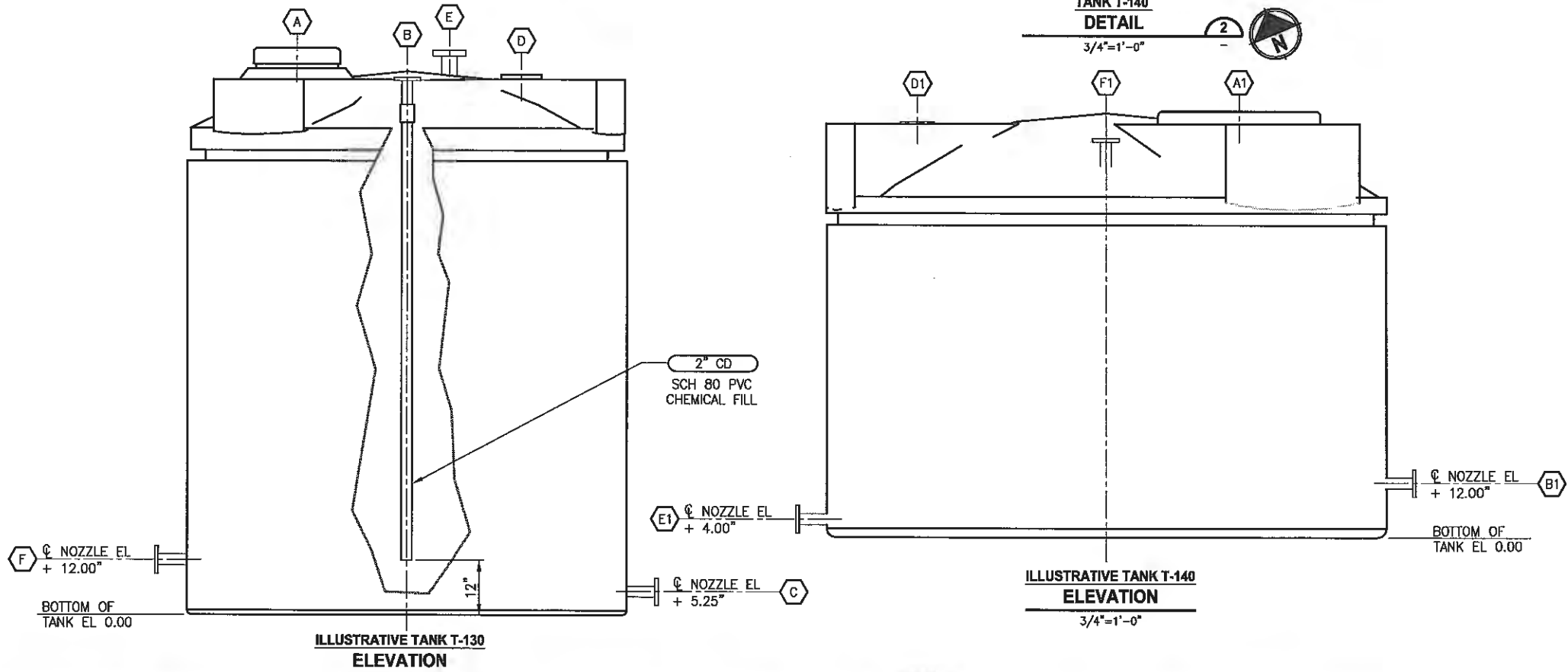
1. ALL NOZZLES 150 LB. RAISED FACE FLANGES.



NOZZLE SCHEDULE TANK T-130					
MARK	SIZE	PROJECTION	MATERIAL	SERVICE	REMARKS
A	17 INCH MANWAY	N/A	N/A	N/A	
B	2 INCH	6"	PVC	CHEMICAL FILL	WITH INTERNAL FILL PIPE
C	2 INCH	6"	PVC	TANK DRAIN	
D	4 INCH	6"	PVC	TANK VENT	
E	3 INCH	6"	STAINLESS STEEL	LEVEL INSTRUMENT	
F	2 INCH	6"	PVC	PROCESS DISCHARGE	

NOZZLE SCHEDULE TANK T-140					
MARK	SIZE	PROJECTION	MATERIAL	SERVICE	REMARKS
A1	24 INCH MANWAY	N/A	N/A	N/A	
B1	2 INCH	6"	PVC	PROCESS DISCHARGE	
C1	6 INCH	6"	PVC	TANK VENT	
D1	3 INCH	6"	STAINLESS STEEL	LEVEL INSTRUMENT	
E1	2 INCH	6"	PVC	TANK DRAIN	
F1	2 INCH	6"	PVC	CHEMICAL FILL	

MIXER SCHEDULE					
TANK ID	MIXER ID	PROCESS	LOCATION	FUNCTION	REMARKS
T-140	MX-140	POLY ALUM	TOP	MIXER	SEE NOTE 4



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PROJECT NAME
SCHNITZER STEEL
STORMWATER IMPROVEMENTS
TACOMA, WASHINGTON

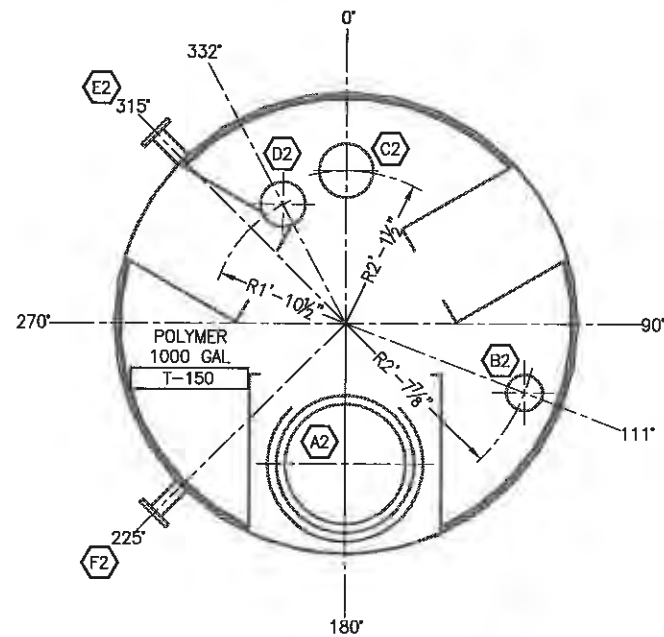
TREATMENT SYSTEM EQUIPMENT
SECTIONS AND DETAILS I

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DATE: 08/26/12 BY: BTH

DRAWING NO.
49 OF 72
M17

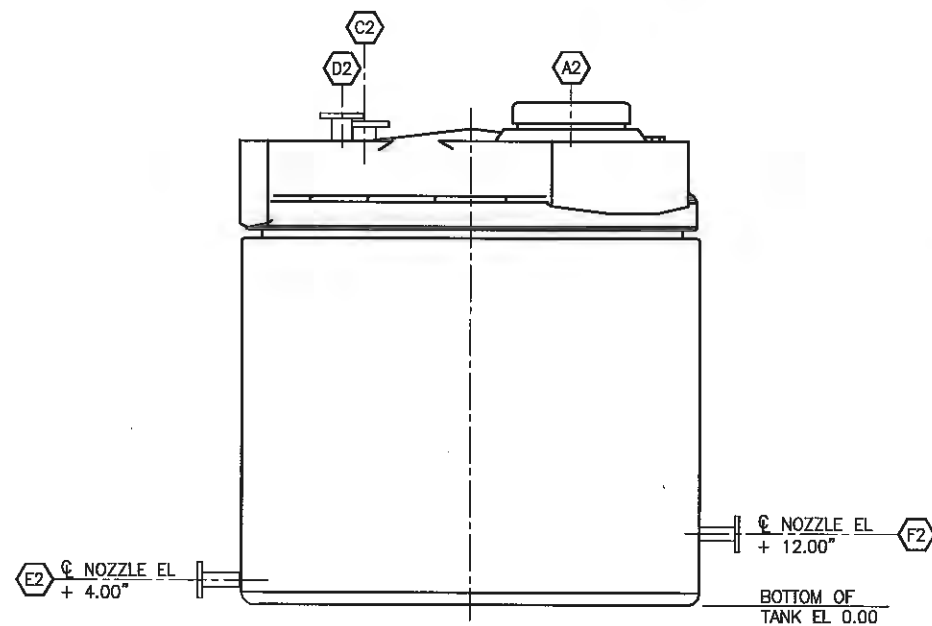
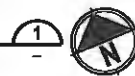
NOTES:

1. ALL NOZZLES 150 LB. RAISED FACE FLANGES.
2. ALL ANCHORAGE KITS SUPPLIED BY TANK MANUFACTURER STAINLESS STEEL.



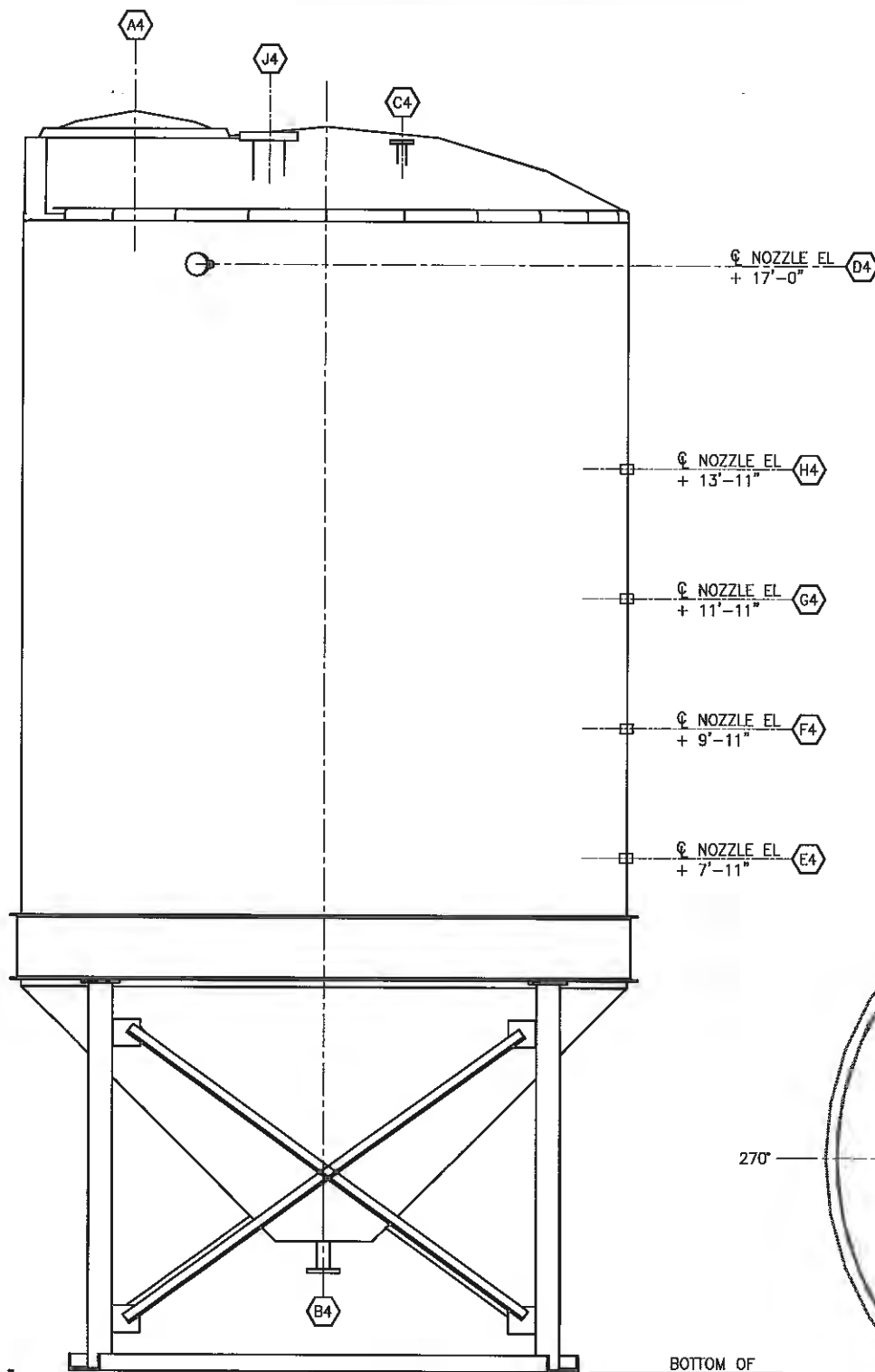
**TANK T-150
DETAIL**

3/4"=1'-0"



**ILLUSTRATIVE TANK T-150
ELEVATION**

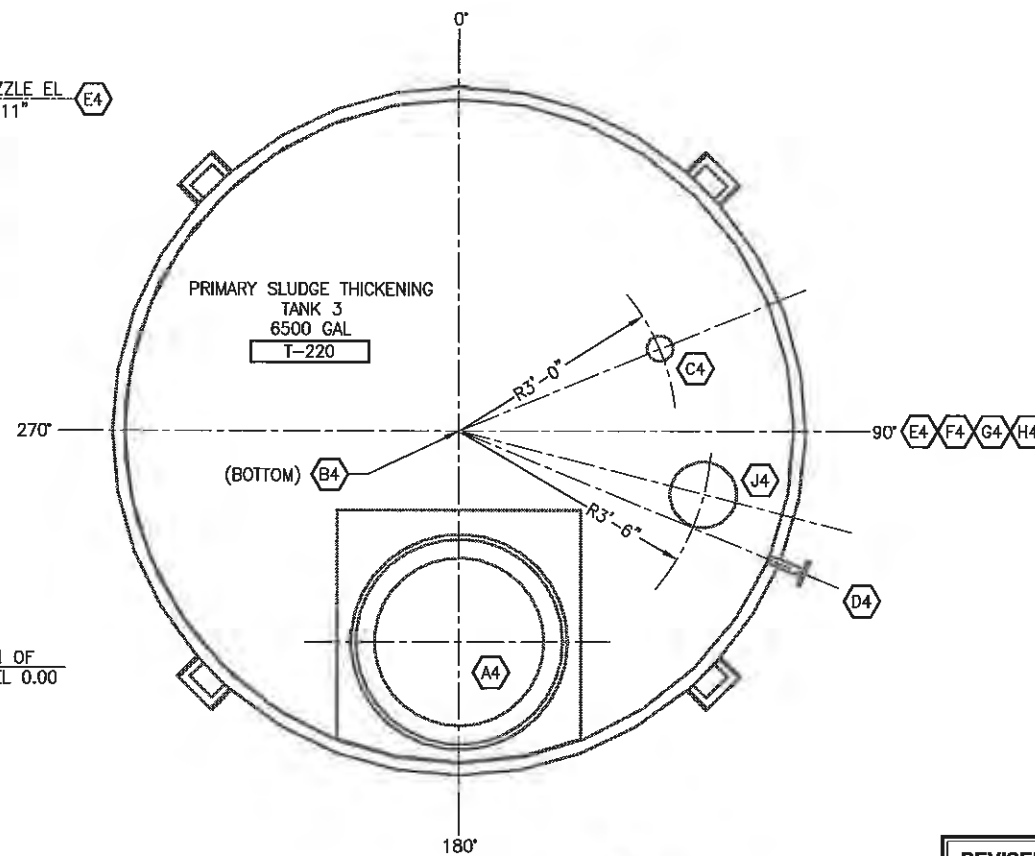
3/4"=1'-0"



**ILLUSTRATIVE TANK T-220
ELEVATION**

3/4"=1'-0"

NOZZLE SCHEDULE TANK T-220					
MARK	SIZE	PROJECTION	MATERIAL	SERVICE	REMARKS
A4	24" MANWAY	N/A	N/A	N/A	
B4	2 INCH	4"	PVC	TANK DISCHARGE	
C4	2 INCH	6"	PVC	CLARIFIER SLUDGE	
D4	2 INCH	6"	PVC	OVERFLOW TO TANK T-250	
E4	1 INCH	N/A	PVC	SAMPLE PORT	FNPT COUPLING
F4	1 INCH	N/A	PVC	SAMPLE PORT	FNPT COUPLING
G4	1 INCH	N/A	PVC	SAMPLE PORT	FNPT COUPLING
H4	1 INCH	N/A	PVC	SAMPLE PORT	FNPT COUPLING
J4	6 INCH	6"	PVC	TANK VENT	



**TANK T-220
DETAIL**

3/4"=1'-0"



MIXER SCHEDULE					
TANK ID	MIXER ID	PROCESS	MOUNTING LOCATION	FUNCTION	REMARKS
T-150	MX-150	POLYMER	TOP	MIXER	SEE NOTE 5
T-220	MX-220	SLUDGE	TOP	RAKE	SEE NOTE 5

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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

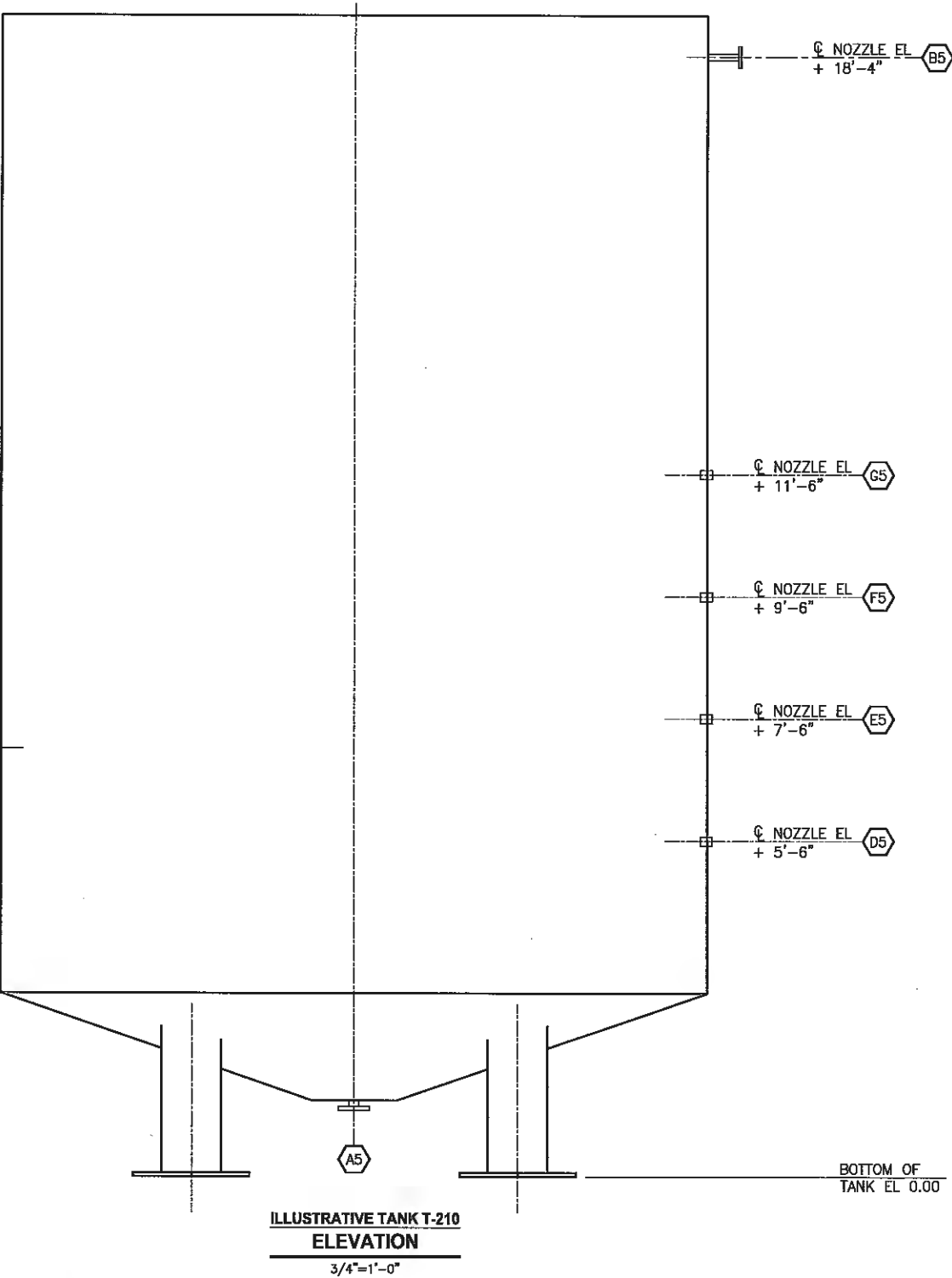
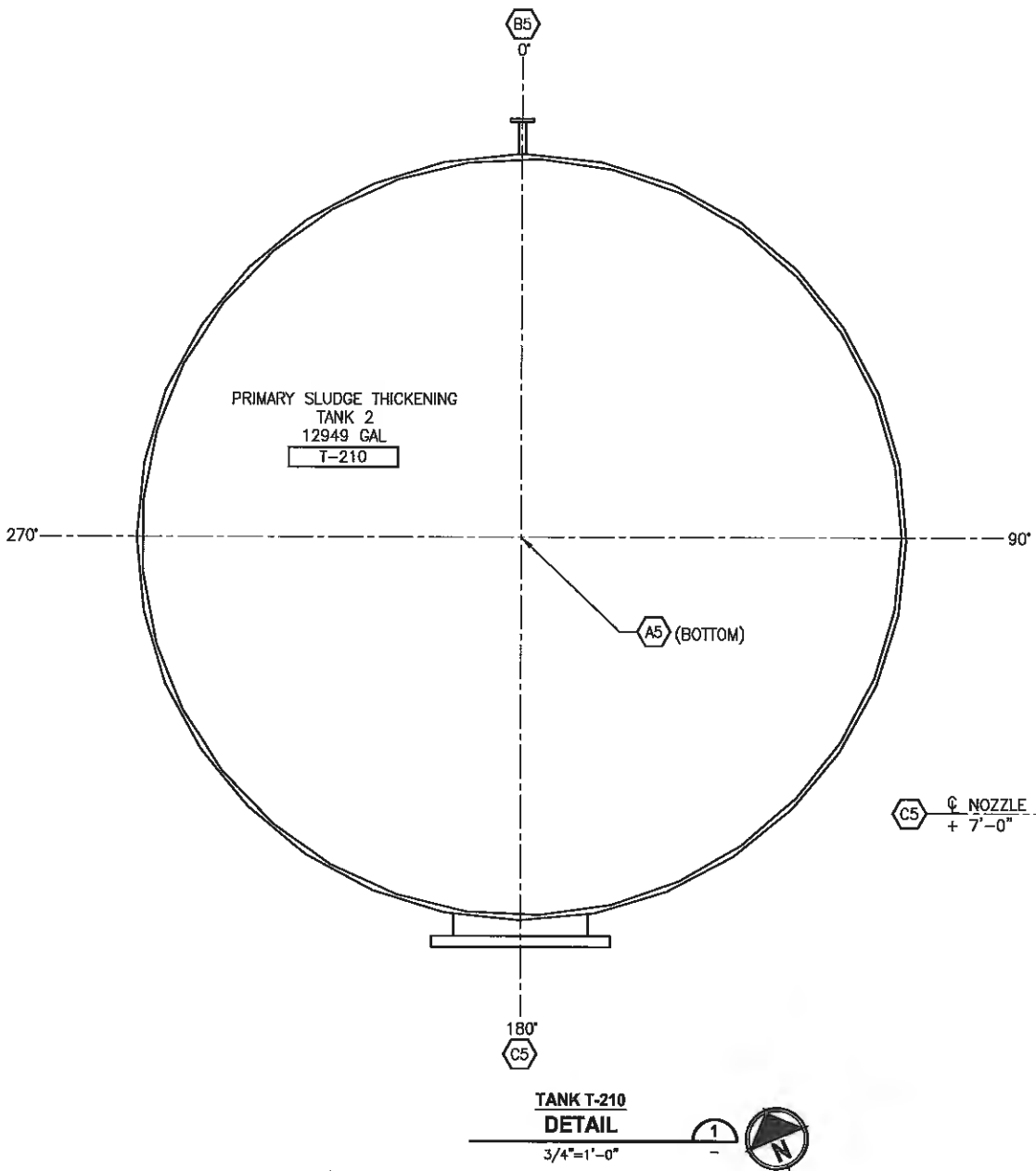
**TREATMENT SYSTEM EQUIPMENT
SECTIONS AND DETAILS II**

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DATE: 08/26/12 BY: BTH

DRAWING NO.
50 OF 72
M18

NOTES:

1. ALL NOZZLES 150 LB. RAISED FACE FLANGES.
2. ALL TANK ANCHORAGE STAINLESS STEEL.



TANK T-210
DETAIL

3/4"=1'-0"

ILLUSTRATIVE TANK T-210
ELEVATION

3/4"=1'-0"

NOZZLE SCHEDULE TANK T-210

MARK	SIZE	PROJECTION	MATERIAL	SERVICE	REMARKS
A5	2 INCH	6"	CARBON STEEL	TANK DISCHARGE	EXISTING
B5	2 INCH	6"	CARBON STEEL	OVERFLOW TO TANK T-250	EXISTING
C5	24 INCH	N/A	N/A	MANWAY	EXISTING
D5	1 INCH	N/A	CARBON STEEL	SAMPLE PORT	EXISTING FNPT COUPLING
E5	1 INCH	N/A	CARBON STEEL	SAMPLE PORT	EXISTING FNPT COUPLING
F5	1 INCH	N/A	CARBON STEEL	SAMPLE PORT	EXISTING FNPT COUPLING
G5	1 INCH	N/A	CARBON STEEL	SAMPLE PORT	EXISTING FNPT COUPLING

MIXER SCHEDULE

TANK ID	MIXER ID	PROCESS	MOUNTING LOCATION	FUNCTION	REMARKS
T-210	MX-210	SLUDGE	TOP	RAKE	SEE NOTE 11

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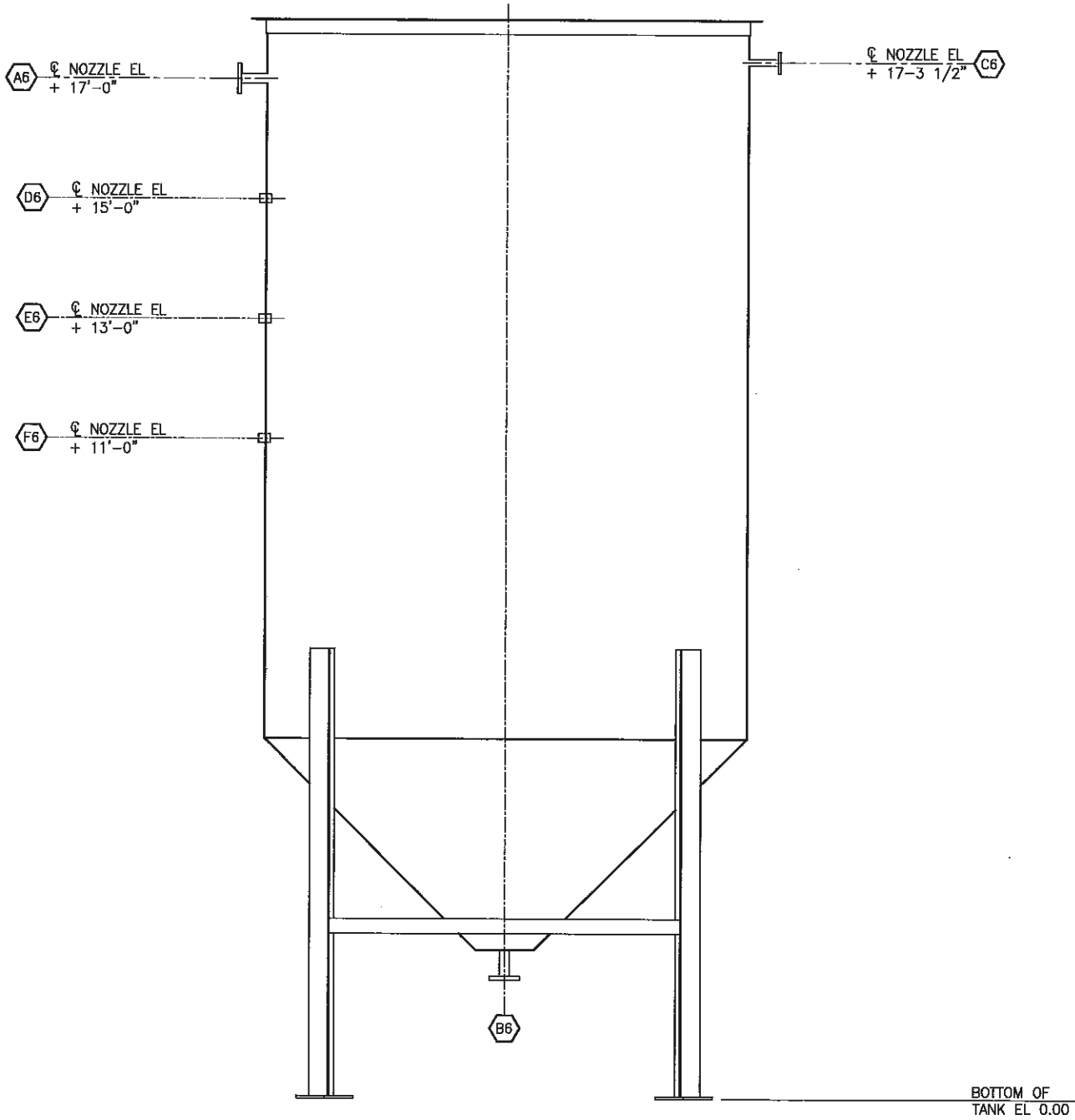
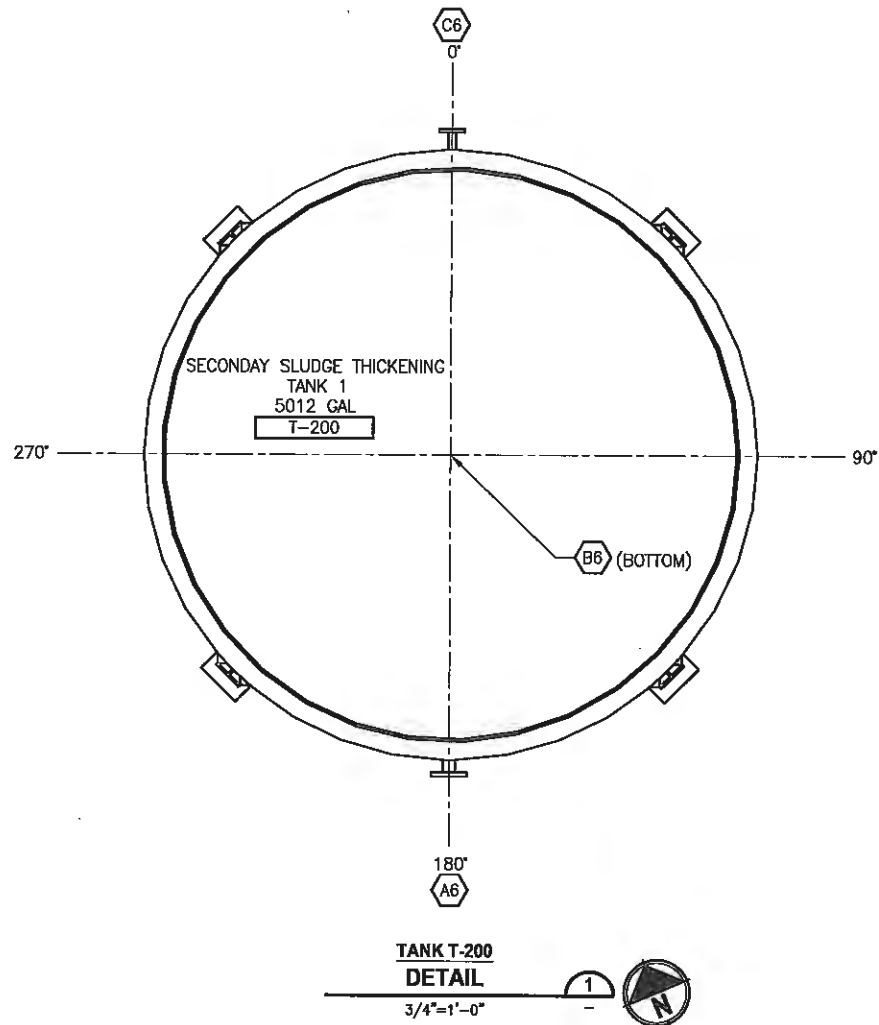
**TREATMENT SYSTEM EQUIPMENT
SECTIONS AND DETAILS III**

DRAWING NO.
51 OF 72

M19

NOTES:

1. ALL NOZZLES 150 LB. RAISED FACE FLANGES.
2. ALL TANK ANCHORAGE STAINLESS STEEL.



ILLUSTRATIVE TANK T-200
ELEVATION
3/4"=1'-0"

NOZZLE SCHEDULE TANK T-200					
MARK	SIZE	PROJECTION	MATERIAL	SERVICE	REMARKS
A6	2 INCH	6"	CARBON STEEL	DICHARGE PUMP P-280A	EXISTING
B6	2 INCH	6"	CARBON STEEL	OVERFLOW TO TANK T-250	EXISTING
C6	2 INCH	6"	CARBON STEEL	TANK DISCHARGE	
D6	1 INCH	N/A	CARBON STEEL	SAMPLE PORT	EXISTING FNPT COUPLING
E6	1 INCH	N/A	CARBON STEEL	SAMPLE PORT	EXISTING FNPT COUPLING
F6	1 INCH	N/A	CARBON STEEL	SAMPLE PORT	EXISTING FNPT COUPLING

MIXER SCHEDULE					
TANK ID	MIXER ID	PROCESS	MOUNTING LOCATION	FUNCTION	REMARKS
T-200	MX-200	SLUDGE	TOP	RAKE	SEE NOTE 10

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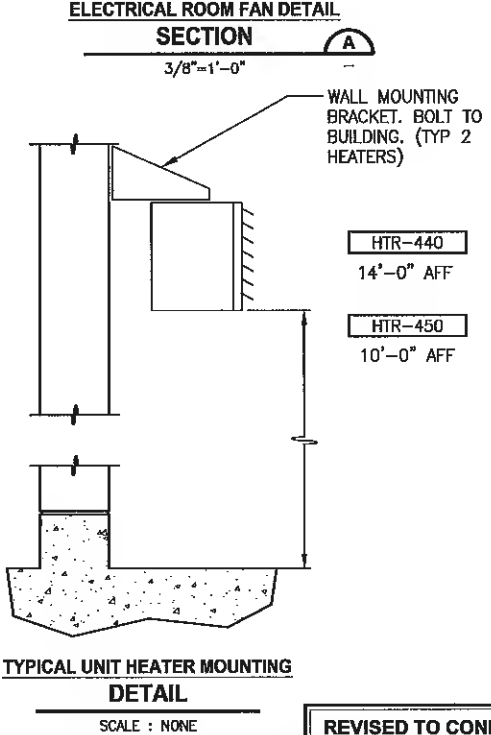
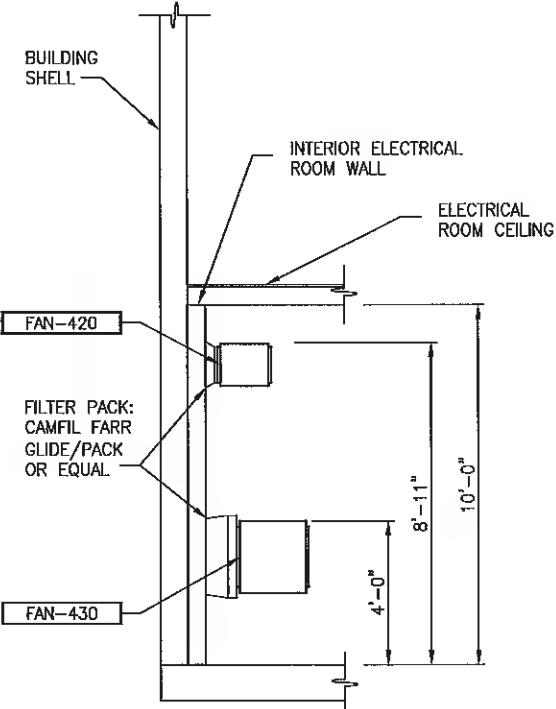
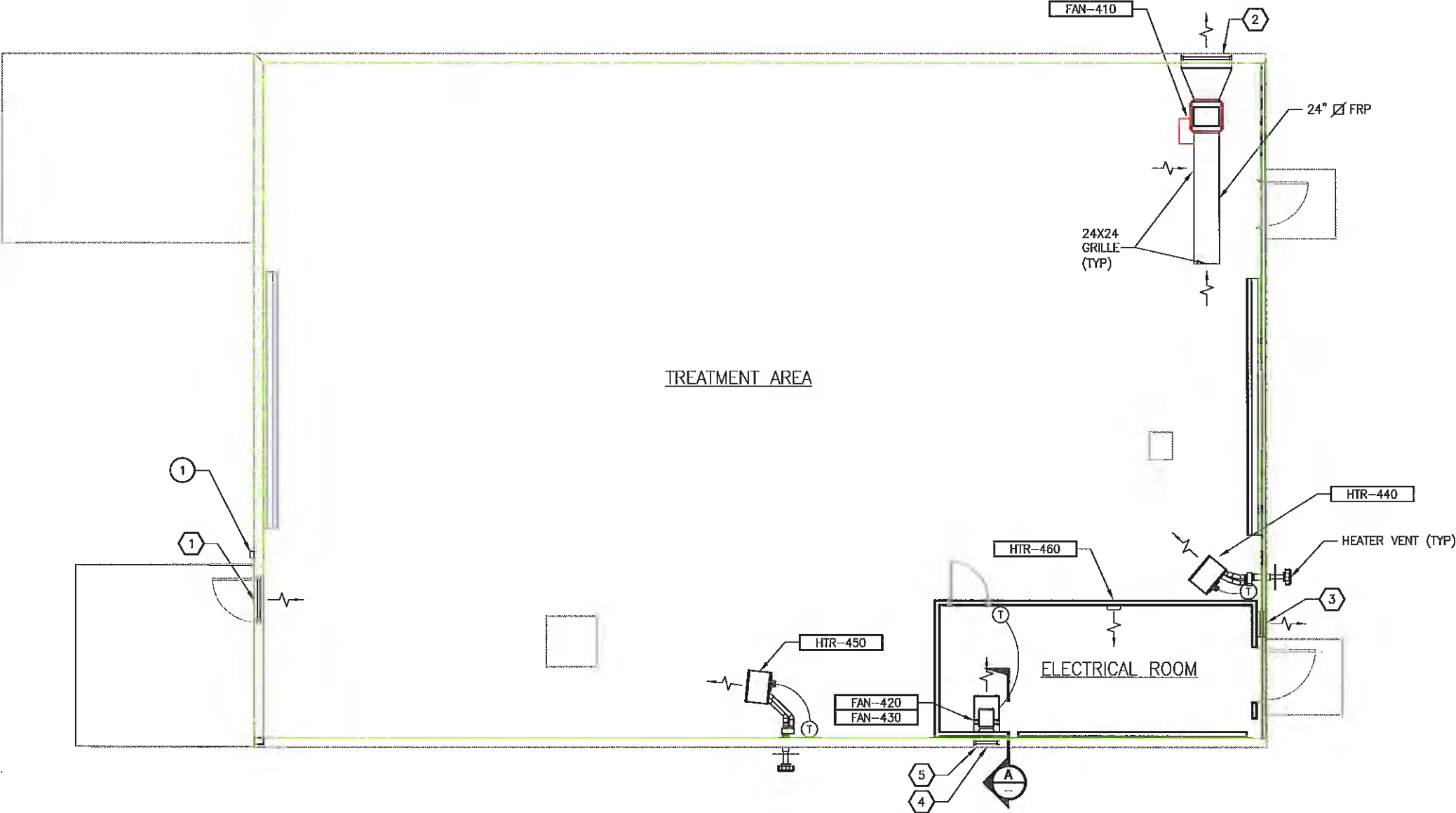
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PROJECT NAME
SCHNITZER STEEL
STORMWATER IMPROVEMENTS
TACOMA, WASHINGTON

TREATMENT SYSTEM EQUIPMENT
SECTIONS AND DETAILS IV

DRAWING NO.
52 OF 72
M20

- NOTES:**
1. INSTALL 3 INTERPOSING RELAYS THAT WILL STOP THE FANS (FAN-410, FAN-420, AND FAN-430) WHEN THE GLASS IS BROKEN THE FANS WILL ALL STOP. USE CONTROL POWER FROM FAN-410 TO SENSE THE SWITCH AND OPERATE THE RELAY COILS.
 2. HEATING AND VENTILATION SHALL BE MAINTAINED AS FOLLOWS:
MAIN ROOM - 40° TO 90°
ELECTRICAL ROOM - 50° TO 86°



LOUVER SCHEDULE										
MARK	SIZE				TYPE	DUTY	MISC.		REMARKS	
	WIDTH (IN)	HEIGHT (IN)	DEPTH (IN)	BOTTOM OF LOUVER			MIN. FREE AREA (SQ. FT.)	MAX. C.F.M.		
1	48	48	6	12'-0"	STATIONARY	INTAKE	8.9	-	.06 INCHES W.C. @ 4900 CFM	
2	48	48	6	11'-0"	ADJUSTABLE	RELIEF	8.9	-	.06 INCHES W.C. @ 4900 CFM	
3	24	24	6	6'-0"	MOTORIZED	EXHAUST	1.76	-	.05 INCHES W.C. @ 1100 CFM	
4	24	24	6	7'-4"			1.76	-	.05 INCHES W.C. @ 1100 CFM	
5	24	24	6	2'-0"			1.76	-	.05 INCHES W.C. @ 1100 CFM	

HEATING AND VENTILATION EQUIPMENT SCHEDULE						
EQUIP. NO.	DESCRIPTION	HEATING CAPACITY BTU/Hr (KW)	CFM	VOLTAGE	PHASE	REMARKS
FAN410	MAIN ROOM VENTILATION FAN	-	4,900	480	3	1.5 HP, SP=0.4 INCHES W.C.
FAN420	ELECTRICAL ROOM VENTILATION FAN	-	245	120	1	SP=0.15 INCHES W.C.
FAN430	ELECTRICAL ROOM COOLING FAN	-	500	120	1	SP=.25 INCHES W.C.; W/WALL THERMOSTAT
HTR440	MAIN ROOM UNIT HEATER	48,600		120	1	NATURAL GAS HEATER W/WALL THERMOSTAT
HTR450	MAIN ROOM UNIT HEATER	60,750		120	1	NATURAL GAS HEATER W/WALL THERMOSTAT
HTR460	ELECTRICAL ROOM WALL HEATER	(2.25)		240	1	

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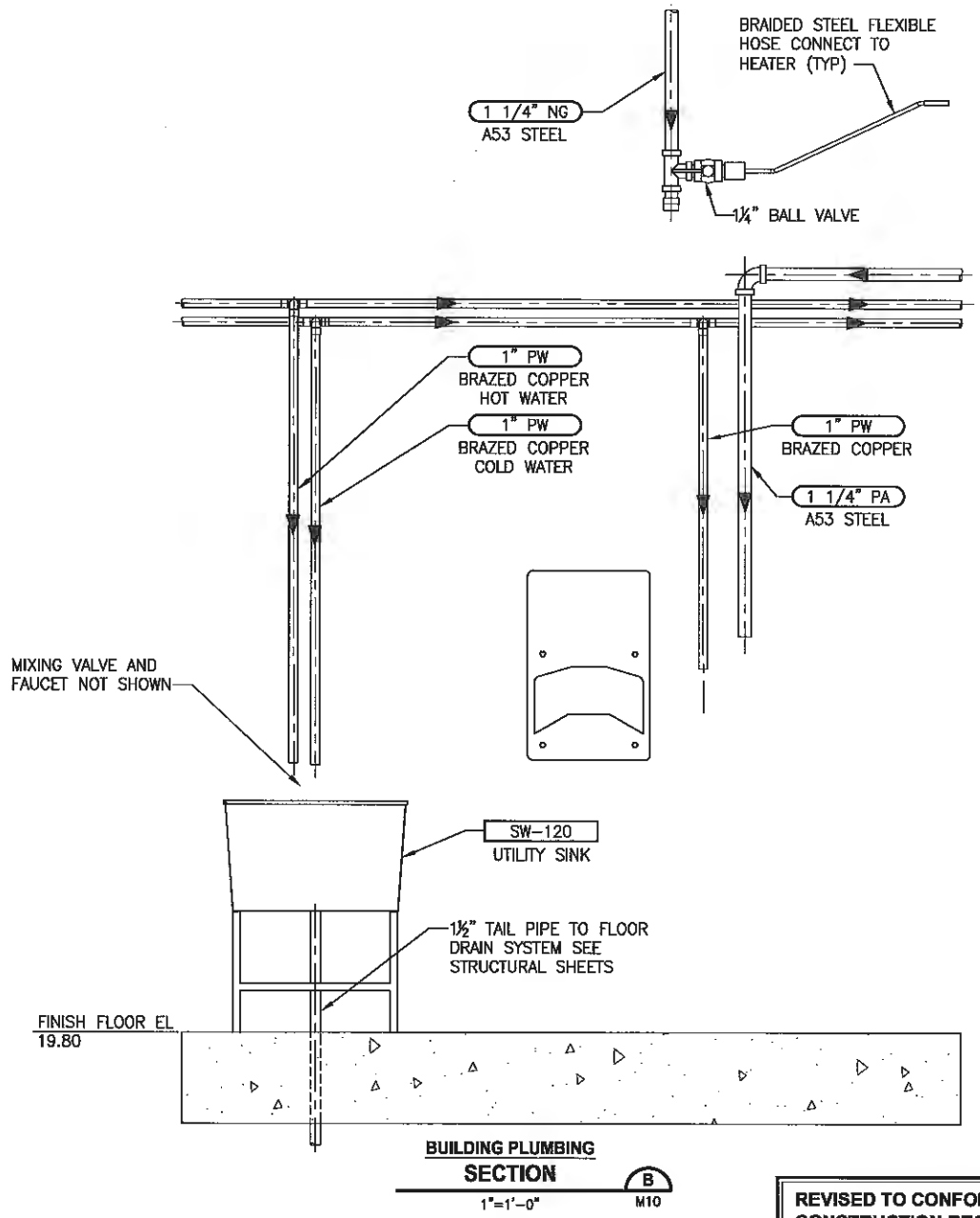
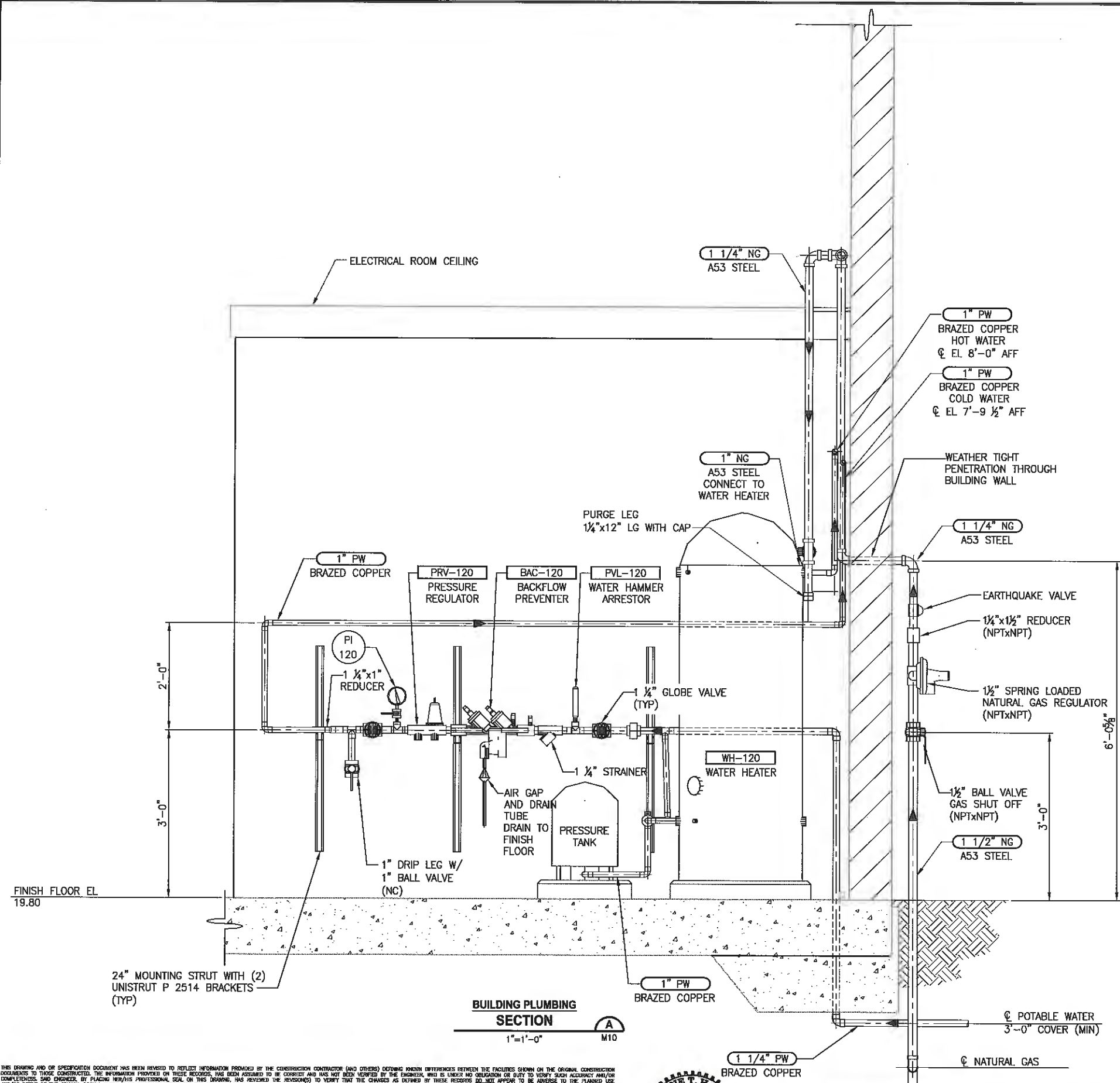
**TREATMENT BUILDING HEATING,
VENTILATION PLAN AND DETAILS**

DRAWING NO.
53 OF 72
M21

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NOTES:

1. ALL FASTENERS STAINLESS STEEL.
2. ALL STRUT AND BRACKETS FACTORY GALVANIZED.
3. VENT WATER HEATER WH-120 THROUGH BUILDING WALL WITH WEATHER CAP AND SCREENED VENT PIPE, NOT SHOWN.
4. SEE STRUCTURAL SHEETS FOR TYPICAL PIPE SUPPORTS.



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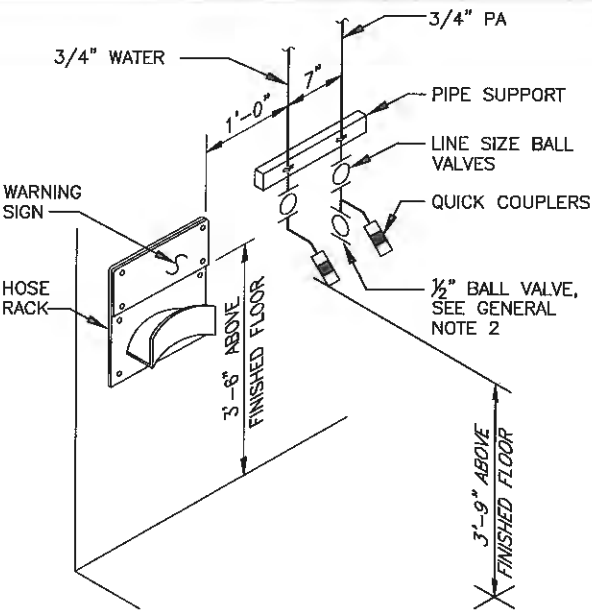
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 STORMWATER IMPROVEMENTS**
 TACOMA, WASHINGTON

**TREATMENT BUILDING PLUMBING
 PLAN, SECTIONS, AND DETAILS**

DRAWING NO.
 54 OF 72
M22

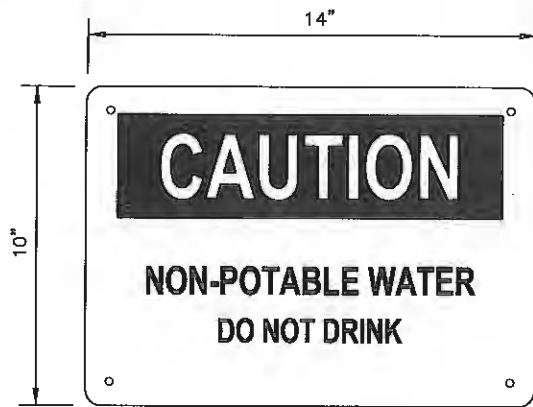
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NOTES:

1. QUICK COUPLERS TO BE A MINIMUM OF 4" FROM WALL AND AT A 45 DEGREE ANGLE.

**TYPE A UTILITY STATION WALL MOUNTED
DETAIL**
SCALE : NONE



NOTES:

1. GRAPHIC: AS SHOWN WITH BLACK LEGEND ON YELLOW FIELD IN ACCORDANCE WITH ANSI Z535.1 AND ANSI Z535.2.
2. MATERIAL: FADEPROOF GRAPHIC PERMANENTLY EMBEDDED IN 0.10 INCH THICK FIBERGLASS REINFORCED PLASTIC. GUARANTEED NOT TO CHIP, FADE OR PEEL FOR 15 YEARS.
3. ROUNDED CORNERS AND 4 MOUNTING HOLES.

**TYPICAL WARNING SIGN
DETAIL**
SCALE : NONE

GENERAL NOTES:

1. ALL UTILITY STATIONS HAVE A WARNING SIGN THAT READS "CAUTION NON-POTABLE WATER DO NOT DRINK" DISPLAYED IN A PROMINENT PLACE AT THE UTILITY STATION. SEE DETAIL.
2. ALL FASTENERS STAINLESS STEEL.

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**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**

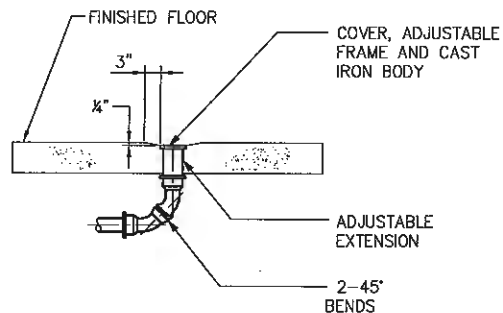
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UTILITY STATION DETAILS

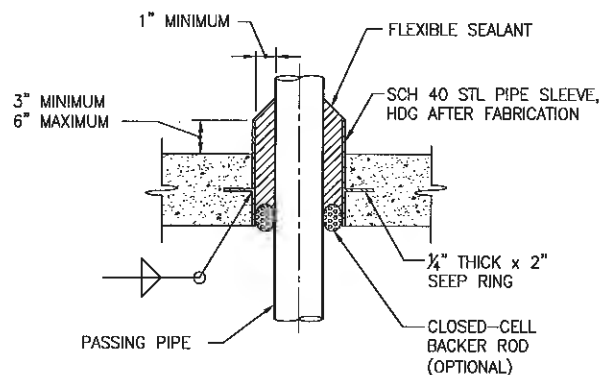
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M23



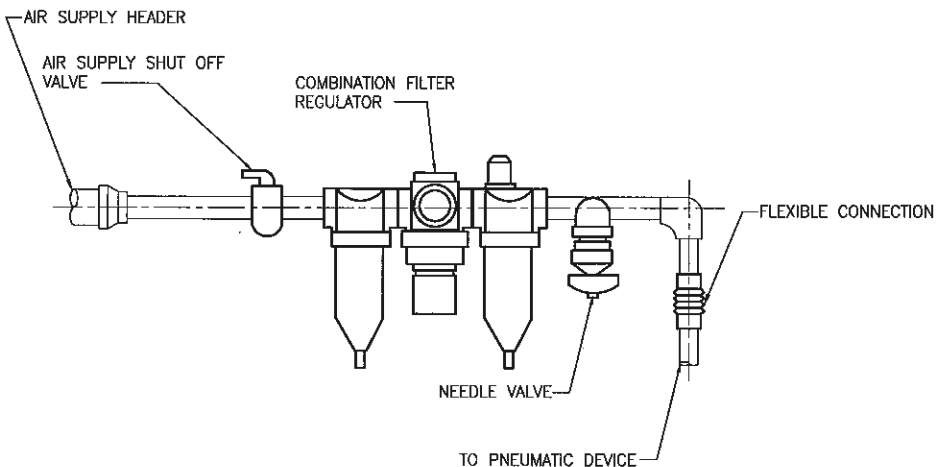
**FLOOR CLEANOUT (FCO)
DETAIL**
NO SCALE



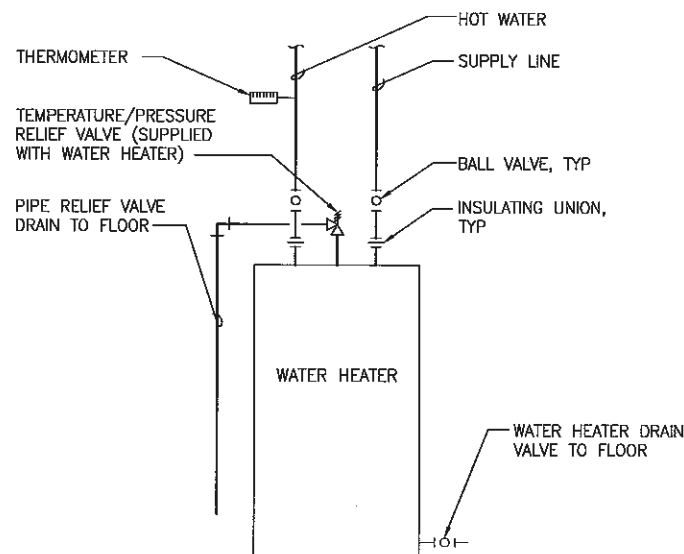
NOTE:

1. AT EXISTING FLOORS OR PRECAST VAULTS OR MANHOLES CORE DRILL HOLE TO SUIT AND OMIT PIPE SLEEVE.

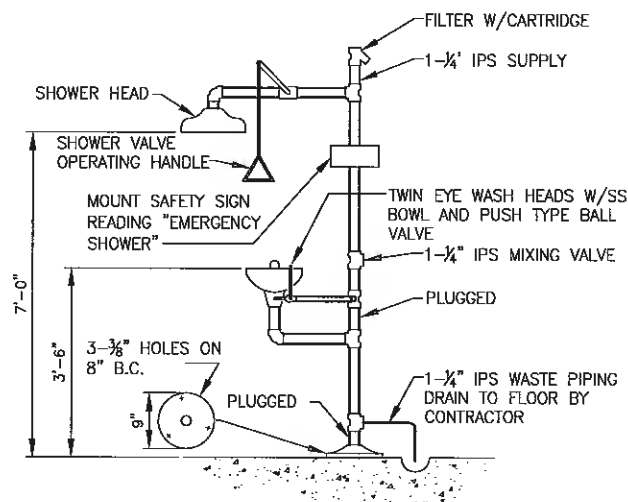
**FLOOR PENETRATION
DETAIL**
NO SCALE



**PNEUMATIC PUMP AIR CONNECTION
DETAIL**
NO SCALE



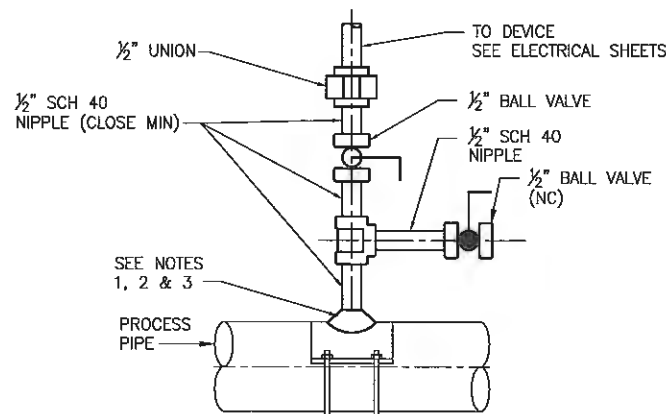
**WATER HEATER
DETAIL**
NO SCALE



NOTES:

1. PIPING IS SCHEMATICAL.

**EMERGENCY
SHOWER AND EYEWASH
DETAIL**
NO SCALE



INSTRUMENT NOTES:

1. FOR STEEL, GALVANIZED STEEL, 2 1/2" AND SMALLER AND ALL PVC PIPE USE A BUSHING IN A TEE.
2. FOR DUCTILE IRON, PVC 4" AND LARGER USE PIPE SADDLE WITH BUSHING OR TAP PIPE. PROVIDE 3 THREADS MINIMUM PER ANSI/ASME B1.20.1.
3. FOR STEEL AND STAINLESS STEEL PIPES 3" AND LARGER, AND PRESSURE VESSELS, USE THREAD-O-LET WITH AN INSULATED BUSHING.
4. ALL BUSHINGS IN STEEL, GALVANIZED, AND SST SHALL BE INSULATED BUSHINGS.

**INSTRUMENT DEVICE
DETAIL**
NO SCALE

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TACOMA, WASHINGTON

TYPICAL DETAILS

DRAWING NO.
56 OF 72
M24

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DATE: 08/26/12 BY: BTH

ABBREVIATIONS

<p>a CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS CLOSED</p> <p>AC ALTERNATING CURRENT</p> <p>A/D ANALOG TO DIGITAL</p> <p>ADJ ADJUSTABLE</p> <p>AF AMPERE FRAME</p> <p>AFD ADJUSTABLE FREQUENCY DRIVE</p> <p>AIC AMPERES INTERRUPTING CAPACITY</p> <p>AMP AMPERES</p> <p>ANN ANNUNCIATOR</p> <p>AS AMMETER SWITCH</p> <p>AT AUTOMATIC TRIP</p> <p>ATS AUTOMATIC TRANSFER SWITCH</p> <p>AUTO AUTOMATIC</p> <p>AWG AMERICAN WIRE GAGE</p> <p>b CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS OPEN</p> <p>BCG BARE COPPER GROUND</p> <p>C CONDUIT</p> <p>CAB CABINET</p> <p>CAP CAPACITOR</p> <p>CB CIRCUIT BREAKER</p> <p>CC CONTROL CABLE, CLOSING COIL</p> <p>CHH COMMUNICATION HANDHOLE</p> <p>CKT CLARIFIER CONSOLE</p> <p>CMH CIRCUIT COMMUNICATION MANHOLE</p> <p>CO CONDUIT ONLY</p> <p>COMM COMMUNICATION</p> <p>COND CONDUCTOR</p> <p>CPT CONTROL POWER TRANSFORMER</p> <p>CP CONTROL PANEL</p> <p>CR CONTROL RELAY</p> <p>CS CONTROL STATION</p> <p>CT CURRENT TRANSFORMER</p> <p>DB DIRECT BURIAL</p> <p>DC DIRECT CURRENT</p> <p>DIAG DIAGRAM</p> <p>DISC DISCONNECT</p> <p>DISTR DISTRIBUTION</p> <p>DIV DIVISION</p> <p>DP DISTRIBUTION PANEL</p> <p>DPDT DOUBLE POLE, DOUBLE THROW</p> <p>DPST DOUBLE POLE, SINGLE THROW</p> <p>(E) EXISTING</p> <p>EE ELECTRICAL ENCLOSURE</p> <p>EHH ELECTRICAL HANDHOLE</p> <p>ELEM ELEMENTARY</p> <p>EMERG EMERGENCY</p> <p>ENCL ENCLOSURE</p> <p>EFTL EFFLUENT</p> <p>EGC EQUIPMENT GROUND CONDUCTOR</p> <p>EQPT EQUIPMENT</p> <p>ETM ELAPSED TIME METER</p>	<p>FDR FEEDER</p> <p>FE FLOW ELEMENT</p> <p>FT FLOW INDICATING TRANSMITTER</p> <p>FLEX FLEXIBLE</p> <p>FREQ FREQUENCY</p> <p>FSH FLOAT SWITCH HIGH</p> <p>FSD FLOAT SWITCH OVERFLOW</p> <p>FU FUSE</p> <p>FUT, (F) FUTURE</p> <p>FVNR FULL VOLTAGE, NON REVERSING</p> <p>FVR FULL VOLTAGE, REVERSING</p> <p>GEN GENERATOR</p> <p>GFI GROUND FAULT INTERRUPTER</p> <p>GND GROUND</p> <p>GRS GALVANIZED RIGID STEEL</p> <p>H₂O₂ HYDROGEN PEROXIDE</p> <p>HH HANDHOLE</p> <p>HOA HAND-OFF-AUTOMATIC</p> <p>HOR HAND-OFF-REMOTE</p> <p>HPS HIGH PRESSURE SODIUM</p> <p>HT HEAT TAPE</p> <p>HTR HEATER</p> <p>HV HIGH VOLTAGE</p> <p>HZ HERTZ (CYCLES PER SECOND)</p> <p>IND LT INDICATING LIGHT</p> <p>INCAND INCANDESCENT</p> <p>INSTR INSTRUMENT, INSTRUMENTATION</p> <p>I/O INPUT/OUTPUT</p> <p>ISB INTRINSICALLY SAFE BARRIER</p> <p>ISR INTRINSICALLY SAFE RELAY</p> <p>JB JUNCTION BOX</p> <p>KA KILOAMPERES</p> <p>KCMIL THOUSANDS OF CIRCULAR MILS</p> <p>KV KILOVOLTS</p> <p>KVA KILOVOLT AMPERES</p> <p>KVAR KILOVOLT AMPERES REACTIVE</p> <p>KVARH KILOVOLT AMPERES REACTIVE HOURS</p> <p>KWH KILOWATT HOURS</p> <p>LCS LOCAL CONTROL STATION</p> <p>LTG LIGHTING</p> <p>LTS LIGHTS</p> <p>LP LIGHTING PANEL</p> <p>(M) MODIFIED</p> <p>mA MILLIAMPERES</p> <p>MCC MOTOR CONTROL CENTER</p> <p>MCP MOTOR CIRCUIT PROTECTION OR MAIN CONTROL PANEL</p> <p>MCN MONITOR</p> <p>MON THOUSAND CIRCULAR MILS (KCMIL)</p> <p>MOV MOTOR OPERATED VALVE</p> <p>MS MOTOR STARTER</p> <p>MTD MOUNTED</p> <p>MTG MOUNTING</p> <p>MTS MANUAL TRANSFER SWITCH</p> <p>(N) NEW</p> <p>NC NORMALLY CLOSED</p> <p>NEMA NATIONAL ELECTRICAL MANUFACTURER'S ASSOC.</p> <p>NEUT NEUTRAL</p> <p>NO NORMALLY OPEN, NUMBER</p> <p>OC OZONE CONTROL PANEL</p> <p>OL OVERLOAD</p> <p>OT OVER TEMPERATURE</p> <p>OVL THERMAL OVERLOAD RELAY</p> <p>QIT OPERATOR INTERFACE TERMINAL</p>	<p>P POLE, PUMP</p> <p>PB PUSHBUTTON SWITCH</p> <p>PBSW PHOTOELECTRIC CELL</p> <p>PF POWER FACTOR</p> <p>PGE PORTLAND GENERAL ELECTRIC</p> <p>pH MEASURE OF ACIDITY OR ALKALINITY</p> <p>PH PHASE</p> <p>PIOP PLC I/O PANEL</p> <p>PLC PROGRAMMABLE LOGIC CONTROLLER</p> <p>PNC PANEL</p> <p>PNLBD PANELBOARD</p> <p>POSN POSITION</p> <p>POT POTENTIOMETER</p> <p>PPS PACKAGED POWER SUPPLY</p> <p>PRI PRIMARY</p> <p>PSH PRESSURE SWITCH HIGH</p> <p>PWR POWER</p> <p>(R) RELOCATED</p> <p>RCP RECEPTACLE</p> <p>RCT REPEAT CYCLE TIMER</p> <p>RT RESET TIMER</p> <p>SCCR SHORT CIRCUIT CURRENT RATING</p> <p>SCR SILICON CONTROLLED RECTIFIER</p> <p>SD SMOKE DETECTOR</p> <p>SG SIGNAL</p> <p>SN SINGLE POLE, DOUBLE THROW</p> <p>SPOT STAINLESS STEEL</p> <p>SST SOLENOID VALVE</p> <p>SW SWITCH</p> <p>SWBD SWITCHBOARD</p> <p>SWGR SWITCHGEAR</p> <p>SYNC SYNCHRONIZING</p> <p>TB TERMINAL BOX</p> <p>TEL TELEPHONE CABINET</p> <p>TERM TERMINAL</p> <p>TO TIMED OPENING</p> <p>TOA TEST-OFF-AUTOMATIC</p> <p>TSP TWISTED SHIELDED PAIR</p> <p>TST TWISTED SHIELDED TRIAD</p> <p>TVSS TRANSIENT VOLTAGE SURGE SUPPRESSOR</p> <p>UGND UNDERGROUND</p> <p>VA VOLT-AMPERES</p> <p>VAR VOLT AMPERES REACTIVE</p> <p>VFD VARIABLE FREQUENCY DRIVE</p> <p>VH VOLT-HOUR</p> <p>VS VOLTMETER SWITCH</p> <p>W WIRE, WATTS</p> <p>WH WATTHOUR METER</p> <p>WHDM WATTHOUR DEMAND METER</p> <p>WP WEATHERPROOF</p> <p>WR WEATHER RESISTANT</p> <p>WT WATERTIGHT</p> <p>WWR WASHWATER RECOVERY</p> <p>XFMR TRANSFORMER</p>
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PLAN SYMBOLS

OVERHEAD POWER LINE

UNDERGROUND DIRECT BURIAL CABLE

UNDERGROUND DUCT LINE (CONC. ENCASMENT)

UNDERGROUND DIRECT BURIAL CONDUITS

CONDUIT CONCEALED IN WALL OR CEILING

CONDUIT CONCEALED IN FLOOR

EXPOSED CONDUIT

CALLOUT INDICATING CONDUIT SIZE, NUMBER OF WIRES AND WIRE SIZE

CALLOUT INDICATING CONDUIT PER SCHEDULE

CONDUIT RUN, HATCH MARKS INDICATE NUMBER OF #12 CONDUCTORS, NO HATCH MARKS IS (2) #12 AND (1) #12 GND

HOME RUN TO PANELBOARD OR AS INDICATED

FLEXIBLE CONDUIT

CONDUIT RUN, BROKEN AND CONTINUED SAME SHEET OR AS NOTED

CONDUIT WITH SEAL FITTING

CAP ON CONDUIT STUB

OPEN CIRCLE DENOTES UPWARD CONDUIT RISER

SOLID CIRCLE DENOTES DOWNWARD CONDUIT RISER

INDICATES REMOVAL

CABLE TRAY

SURFACE MOUNTED PANELBOARD

FLUSHED MOUNTED PANELBOARD

LOCAL CONTROL STATION

CONTROL STATION W/SAFETY SWITCH (SEE NOTE P4)

EQUIPMENT MOUNTING STAND

MOTOR

SAFETY SWITCH (SEE NOTE P4)

COMBINATION MOTOR STARTER AND SAFETY SWITCH (SEE NOTE P4)

MANUAL MOTOR STARTER

GROUND ROD AND BOX

GROUNDING BRANCH CONNECTION

CONDUIT NUMBER P-POWER C-CONTROL S-SIGNAL

SINGLE POLE SWITCH (SEE NOTES P2 & P3)

2 = 2 POLE, 3 = 3 WAY, 4 = 4 WAY, K = KEY OPERATED WP = WEATHERPROOF D = DIMMER P = SWITCH WITH PILOT LIGHT M = HP RATED, LOCKABLE

FLUORESCENT FIXTURE (SEE NOTES P2 & P3)

WALL/CEILING MOUNTED FIXTURE

POLE MOUNTED FIXTURE

WALL/CEILING MOUNTED EXIT LIGHT - DIRECTIONAL ARROW WHERE INDICATED, SHADED AREA INDICATES ILLUMINATED FACE

WALL/CEILING MOUNTED EMERGENCY LIGHT WITH REMOTE BATTERY

PHOTO ELECTRIC CELL

EMERGENCY LIGHT WITH SELF CONTAINED BATTERY

LIGHT FIXTURE IDENTIFICATION

SINGLE RECEPTACLE, 120V

SINGLE RECEPTACLE, 208V/240V

DUPLEX WALL RECEPTACLE, 120V WP = WEATHERPROOF G = GROUNDED IG = ISOLATED GROUND GF = GROUND FAULT INTERRUPTER

DUPLEX FLOOR RECEPTACLE, 120V

MULTI-OUTLET ASSEMBLY WITH SINGLE RECEPTACLE, 120V SPACING (X INCHES) AS NOTED MOUNTING HEIGHT AS NOTED

SPECIAL PURPOSE WALL RECEPTACLE, RATING AS NOTED

FLOOR, WALL AND CEILING JUNCTION BOXES

WALL TELEPHONE OUTLET (+12")

WALL TELEPHONE OUTLET (+60")

FLOOR TELEPHONE OUTLET

BELL/BUZZER

ELECTRIC METER SOCKET

MANHOLE OR HANDHOLE

EQUIPMENT CONNECTION

INSTRUMENT

EQUIPMENT ID #

THERMOSTAT

SINGLE LINE SYMBOLS

GROUND CONNECTION

SWITCH, 3 POLE EXCEPT WHERE NOTED. RATING IN AMPERES AS NOTED (NOTE 1)

TEST SWITCH WITH SHORTING BLOCK

AUTOMATIC TRANSFER SWITCH 3 POLE, RATING AS NOTED

SHUNT TRIP

FUSE

FUSE CUTOFF

CIRCUIT BREAKER, 3 POLE EXCEPT WHERE NOTED. RATING IN AMPERES AS NOTED.

POWER CIRCUIT BREAKER DRAWOUT ABOVE 1500V RATING AS NOTED

SURGE ARRESTER

CURRENT TRANSFORMER

VOLTAGE TRANSFORMER

POWER OR DISTRIBUTION TRANSFORMER RATING AS NOTED

MOTOR, NUMBER INDICATES HORSEPOWER

EQUIPMENT NAME EQUIPMENT ID #

GENERATOR

BUS STAB ON MCC OR SWITCHGEAR, CORD & PLUG CONNECTION FOR MOTORS

THERMAL OVERLOAD

*** A - AMMETER V - VOLTMETER WH - WATTHOUR METER GS - GROUND FAULT SENSOR**

AMMETER SWITCH

VOLTMETER SWITCH

ELEMENTARY DIAGRAM NUMBER

KIRK KEY INTERLOCK

POWER RECEPTACLE FOR PORTABLE EQUIPMENT

TERMINATOR/POTHEAD

SPLICE, TERMINATION

MOTOR STARTER, NUMBER INDICATES NEMA SIZE (NONE) FULL VOLTAGE NONREVERSING A = AUTOTRANSFORMER REDUCED VOLTAGE SS = SOLID STATE -2S = TWO SPEED

CAPACITOR - KVAR INDICATED

VACUUM BREAK SWITCH

VARIABLE FREQUENCY DRIVE

CALLOUT INDICATING CONDUIT AND WIRE PER SCHEDULE

LOOP WIRING/ELEMENTARY DIAGRAM SYMBOLS

FUSE, RATING IN AMPERES

MOTOR

ELAPSED TIME METER

CONTROL DEVICE COIL, NUMBER, WHEN USED, DISTINGUISHES BETWEEN DEVICES OF THE SAME TYPE.

ALT - ALTERNATOR CR - CONTROL RELAY GR - GENERAL RELAY ISR - INTRINSICALLY SAFE RELAY LR - LATCH RELAY SV - SOLENOID VALVE PR - PROBE RELAY TR - TIMING RELAY TOF - TIMING OFF RELAY MPR - MODE PRIORITY RELAY

INDICATING LIGHT INDICATING LIGHT COLORS: A - AMBER B - BLUE C - CLEAR G - GREEN R - RED N - NEON W - WHITE Y - YELLOW

TERMINAL

SWITCH

PUSHBUTTON

SWITCH, 3-POLE

MULTI-POSITION SELECTOR SWITCH

HAND-OFF-AUTOMATIC SWITCH

HAND-OFF-REMOTE SWITCH

CONTROL POWER TRANSFORMER

120 VAC

MOTOR HTR - MOTOR HEATER

GROUND CONNECTION

CONTACT

WIRING INSIDE ENCLOSURE

FIELD WIRING

CLOSE ON		SENSED VARIABLE
RISING	FALLING	
		FLOW
		LEVEL
		PRESSURE
		TEMPERATURE

CLOSE ON REACHING LIMIT	
CLOSE ON LEAVING LIMIT	

SYMBOL	NORMAL	OPEN TO CLOSED	CLOSED TO OPEN
	OPEN	DELAYED	INSTANTANEOUS
	CLOSED	INSTANTANEOUS	DELAYED
	OPEN	INSTANTANEOUS	DELAYED
	CLOSED	DELAYED	INSTANTANEOUS

GENERAL NOTES

G1 THE INSTALLATION OF ALL EQUIPMENT SHOWN ON THESE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE LATEST EDITIONS OF ALL APPLICABLE CODES AND UTILITY COMPANY STANDARDS. CONTACT THE UTILITY COMPANY REPRESENTATIVES AND VERIFY THEIR REQUIREMENTS.

G2 THIS IS A GENERALIZED LEGEND SHEET. THIS CONTRACT MAY NOT USE ALL INFORMATION SHOWN.

G3 NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS IN EQUIPMENT LOCATIONS ARE DISCOVERED OR IF PROBLEMS ARISE DUE TO FIELD CONDITIONS, LACK OF INFORMATION OR ANY OTHER REASON.

G4 INFORMATION SHOWN MAY NOT BE ALL INCLUSIVE. SEE ALSO ANSI C37.2, Y1.1, Y32.2, AND Y32.9.

G5 VERIFY ALL COLOR REQUIREMENTS BEFORE ORDERING MATERIALS.

G6 REFER TO THE MECHANICAL DRAWINGS FOR EXACT LOCATIONS OF MECHANICAL EQUIPMENT AND FOR CERTAIN CONNECTIONS TO BE MADE TO ELECTRICAL CIRCUITS.

G7 EQUIPMENT SHOWN IN 1/2 TONE OR GREY TONE ARE EXISTING OR BY OTHERS.

PLAN SYMBOL NOTES

P1 CONDUIT SIZE AND FILL SHALL BE AS INDICATED. WHERE NO SIZE IS SHOWN, THE CONDUIT SHALL BE SIZED IN ACCORDANCE WITH THE EDITION OF THE NATIONAL ELECTRICAL CODE ADOPTED BY THE AUTHORITY HAVING CODE ENFORCEMENT JURISDICTION. WHERE NO FILL IS INDICATED, PROVIDE (3) #12 WIRES. PROVIDE 3/16 INCH NYLON PULL ROPE IN EACH EMPTY CONDUIT.

P2 LOWER CASE LETTERS IN PARENTHESIS ADJACENT TO A SWITCH OR LIGHT FIXTURE INDICATE A SWITCHED CIRCUIT AND IDENTIFY THE FIXTURE/SWITCH COMBINATIONS. FOR FOUR LAMP FLUORESCENT FIXTURES WIRED IN PAIRS WITHIN EACH FIXTURE, THE "a" SWITCH CONTROLS THE OUTER LAMPS AND THE "b" SWITCH CONTROLS THE INNER LAMPS. WIRE 3 LAMP FIXTURES SIMILARLY.

P3 NUMBERS IN PARENTHESIS ADJACENT TO A LIGHT FIXTURE OR RECEPTACLE INDICATE THE LIGHTING PANEL BRANCH CIRCUIT FEEDING THE DEVICE.

P4 NUMBER INDICATES THE AMPERAGE RATING OF THE SWITCH. IDENTIFIERS IN PARENTHESIS INDICATE THAT THE SWITCH IS PROVIDED WITH FUSES AND THE AMPERAGE RATING OF THE FUSE(S).

RECORD DRAWING REVISIONS ONLY



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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**

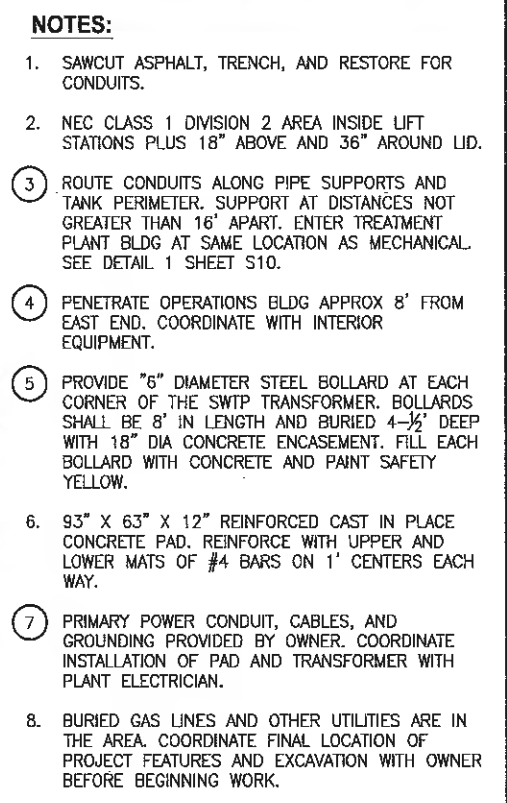
TACOMA, WASHINGTON

ELECTRICAL LEGEND SHEET

REVISD TO CONFORM WITH CONSTRUCTION RECORDS
DATE: 07/26/12 BY: GBW

DRAWING NO.
50 OF 65

E1



PLAN

SCALE IN FEET



0 20 40

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PROJECT NAME

**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**

TACOMA, WASHINGTON


ELECTRICAL SITE AND UTILITY PLAN

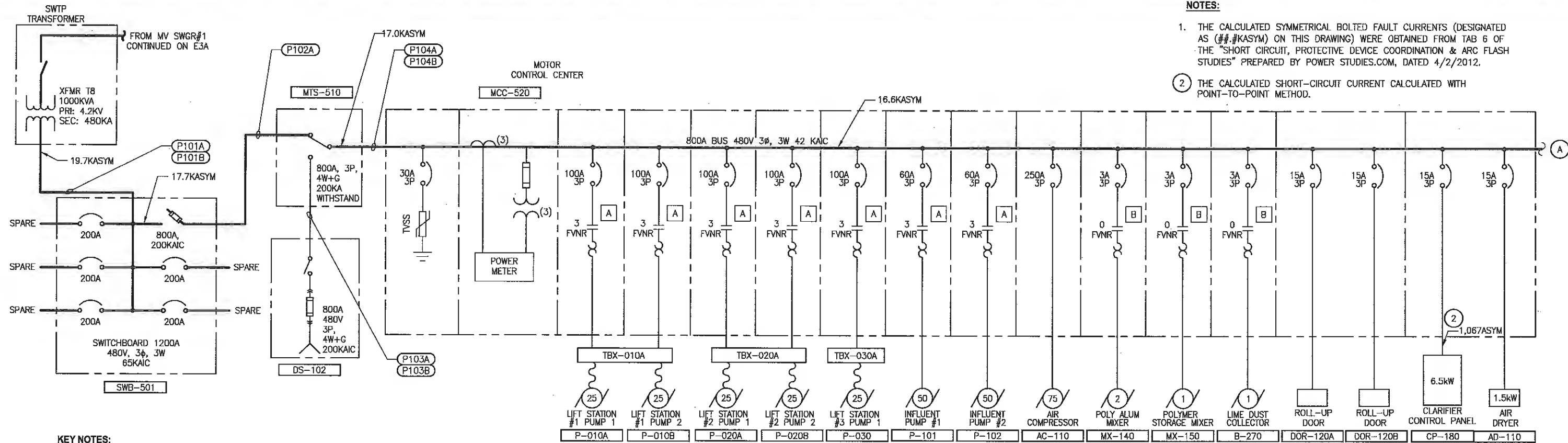
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DRAWING NO.
51 OF 65

E2

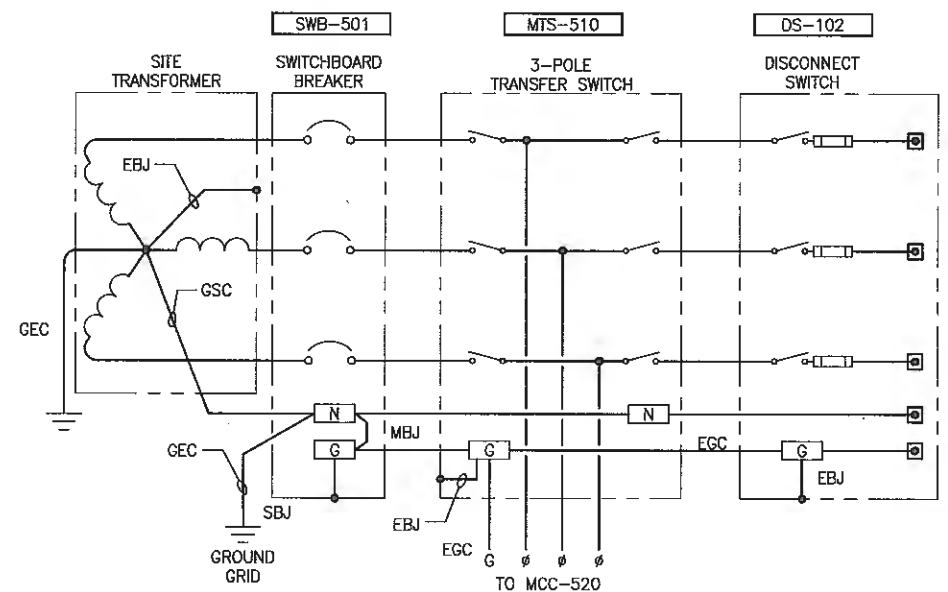
	REVISIONS	DATE	BY	DESIGNED D. WILSON	ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY FILE NAME SU3312002 E-02 JOB No. 275-3312-002 DATE JULY 2012
				DRAWN D. PETERSON	
				CHECKED	
				APPROVED	



- NOTES:**
1. THE CALCULATED SYMMETRICAL BOLTED FAULT CURRENTS (DESIGNATED AS ##.##KASYM ON THIS DRAWING) WERE OBTAINED FROM TAB 6 OF THE "SHORT CIRCUIT, PROTECTIVE DEVICE COORDINATION & ARC FLASH STUDIES" PREPARED BY POWER STUDIES.COM, DATED 4/2/2012.
 2. THE CALCULATED SHORT-CIRCUIT CURRENT CALCULATED WITH POINT-TO-POINT METHOD.

KEY NOTES:

X MOTOR STARTER CONNECTION DETAIL, SEE SHEET E15.

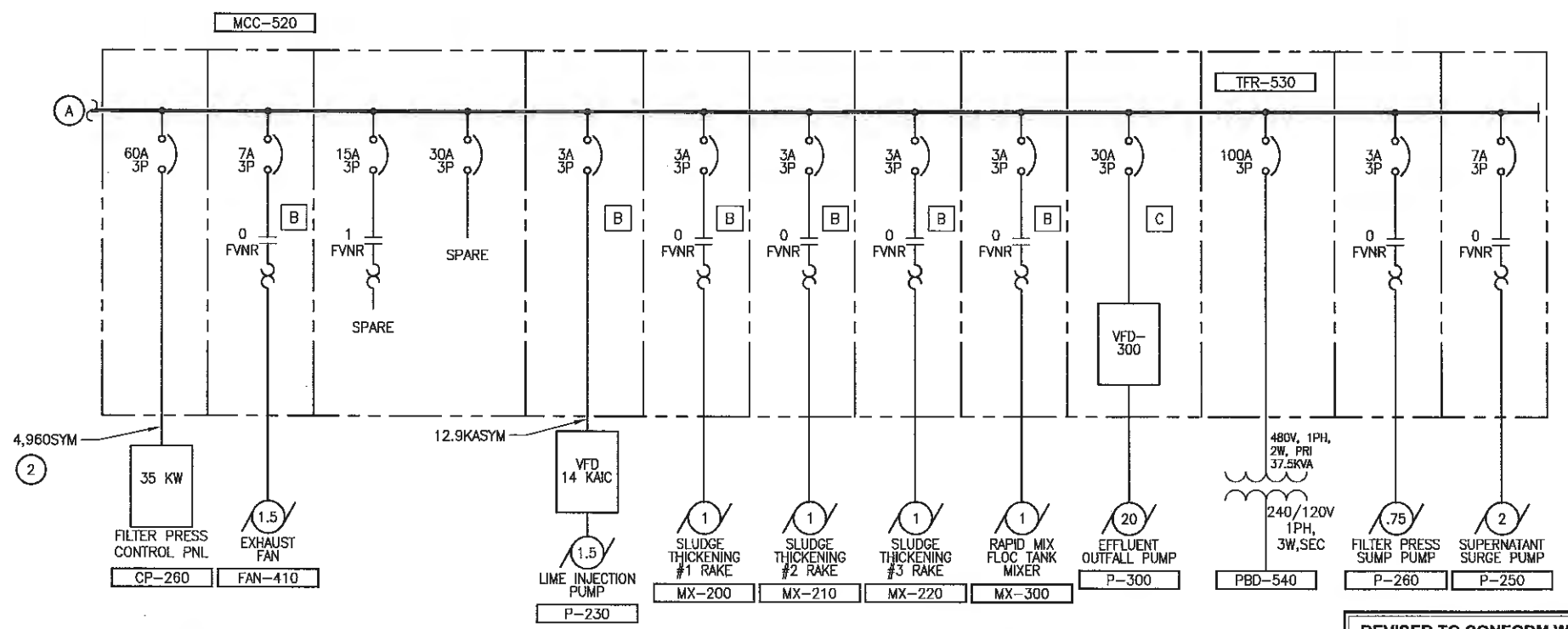


GROUNDING LEGEND

EBJ = EQUIPMENT BONDING JUMPER
 EGC = EQUIPMENT GROUNDING CONDUCTOR
 GEC = GROUNDING ELECTRODE CONDUCTOR
 GSC = GROUNDED SERVICE CONDUCTOR
 MJB = MAIN BONDING JUMPER
 SBJ = SYSTEM BONDING JUMPER

GROUNDING DIAGRAM

NO SCALE



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PROJECT NAME
**SCHNITZER STEEL
 STORMWATER IMPROVEMENTS**
 TACOMA, WASHINGTON

**TREATMENT BUILDING ONE-LINE
 DIAGRAM**

DRAWING NO.
 52 OF 65
E3

**REVISED TO CONFORM WITH
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 DATE: 07/26/12 BY: GBW

File: SUT253312002-E3.dwg Plotted by: breakat Date: Thursday, July 26, 2012 11:16:39 AM

REVISIONS	DATE	BY	DESIGNED
1			D. WILSON
2			D. PETERSON
3			
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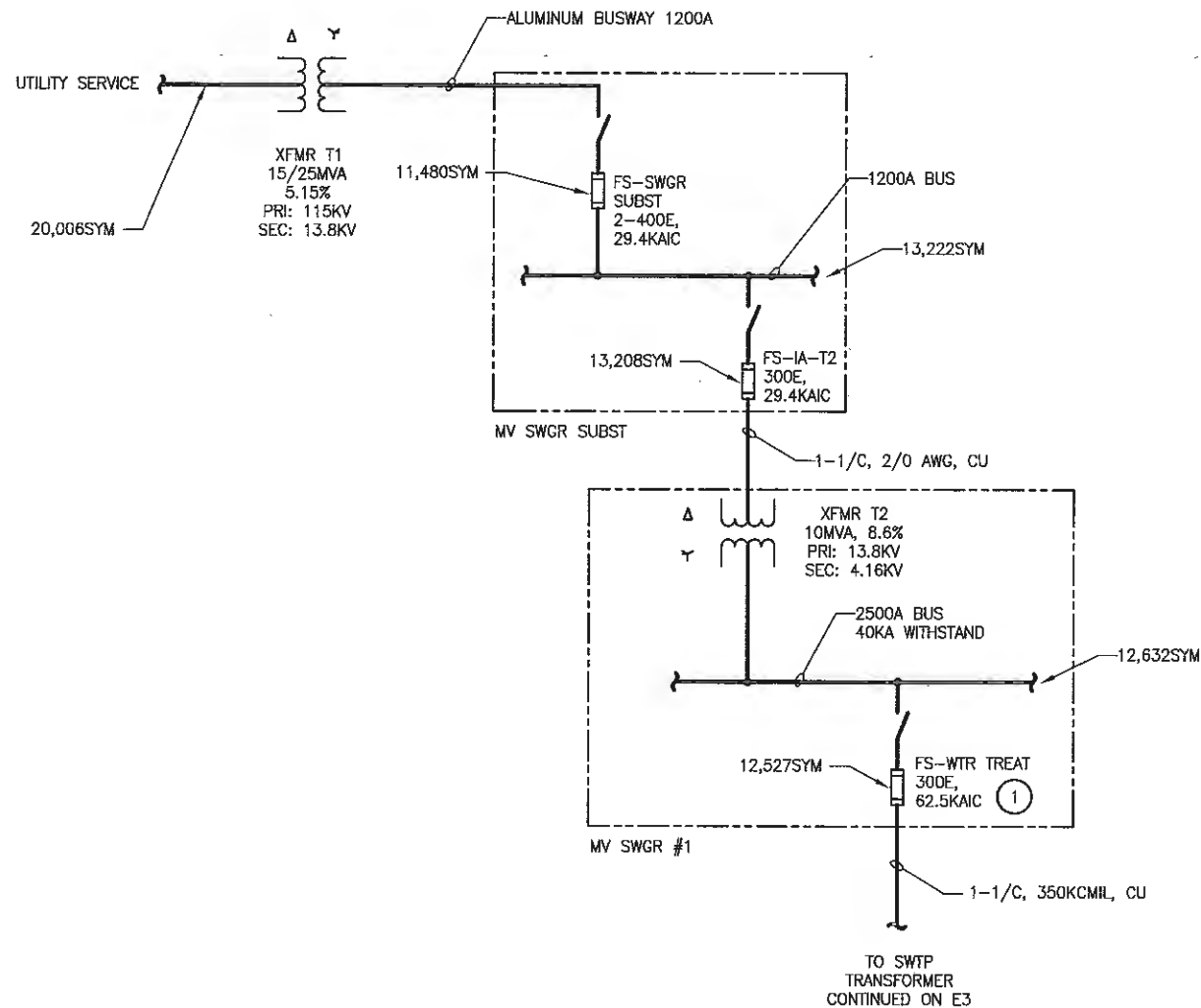
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 SUT253312002-E3.DWG
 JOB NO.
 273-3312-004
 DATE
 JULY 2012

KEY NOTES:

- 200E FUSE PER PHONE CONVERSATION WITH SCHNITZER STEEL.
- LOAD INFORMATION NOT IN GE POWER STUDY. LOAD INFORMATION OBTAINED FROM OWNER.

NOTES:

- THE EXISTING FACILITY ONE-LINE, CALCULATED LOADS & CALCULATED SYMMETRICAL BOLTED FAULT CURRENTS (DESIGNATED AS (###SYM) ON THIS DRAWING) WERE OBTAINED FROM GE PROJECT #30021609 "POWER SYSTEM STUDY FOR SCHNITZER STEEL", SECTION 5 PREPARED BY GE ENERGY INDUSTRIAL SERVICES, DATED DECEMBER 2010.

EXISTING ELECTRICAL SYSTEM
ONE-LINE (PARTIAL)

NAME: MV SWGR SUBST
POWER SOURCE: XFMR T1
VOLTAGE: 13800

STATUS: EXISTING

NEUTRAL BUS: YES
GROUND BUS: YES
MAIN BREAKER SIZE: NA
BUS SIZE: 1,200 AMPS
FAULT CURRENT BRACING: 29,400 AMPS, RMS SYMMETRICAL

LOCATION:
XFMR T1
FEED:
ENCLOSURE: NEMA 3R
SPECIFICATION:

PHASE: 3
WIRE: 4
HERTZ: 60

EQUIPMENT NUMBER		EQUIPMENT NAME OR LOAD DESCRIPTION		LOAD SIZE	LOAD UNIT	VOLT	PH	HP	AMPS	KVA	Load Type	LTG L	RCPT R	MOTOR M	HVAC H	MISC X	LARGEST MOTOR
XFMR T2		MV SWGR #1										5.5	2.7	377.0	6.0	3453.9	
XFMR T4		LV B DUCT MSB-1										0.0	0.0	518.2	0.0	200.0	0.0
XFMR T9		SHREDDER		7000	HP	4160	3	7000	800	5764	LM	0.0	0.0	0.0	0.0	0.0	5764.3

LOAD CALCULATION: SWGR SUBST

	L	R	M	LM	H	X	NEC DEMAND	CALC. KVA
TOTAL LIGHTING (L) LOAD:	6						100%	6
TOTAL RECEPTACLE (R) LOAD:		3					100%	3
TOTAL MOTOR (M) LOAD:			895				50%	0
TOTAL HVAC (H) LOAD:				5764			100%	895
TOTAL MISCELLANEOUS (X) LOAD:					6		125% OF LARGEST	7205
TOTAL KVA:						3654	100%	6
AVERAGE AMPS @ 13800 volts						10328 KVA	100%	3654
						432 AMPS		11769 KVA
								492 AMPS

NAME: MV SWGR #1
POWER SOURCE: XFMR T2
VOLTAGE: 4160

PHASE: 3
WIRE: 4
HERTZ: 60

STATUS: EXISTING

NEUTRAL BUS: YES
GROUND BUS: YES
MAIN BREAKER SIZE: NA
BUS SIZE: 2,500 AMPS
FAULT CURRENT BRACING: 40,000 AMPS, RMS SYMMETRICAL

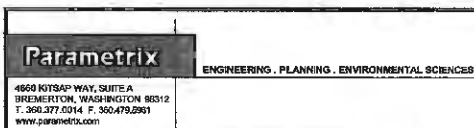
LOCATION: XFMR T2
FEED:
ENCLOSURE: NEMA 3R
SPECIFICATION:

		LOAD								KVA						
EQUIPMENT NUMBER	EQUIPMENT NAME OR LOAD DESCRIPTION	LOAD SIZE	LOAD UNIT	VOLT	PH	HP	AMPS	KVA	Load Type	LTG L	RCPT R	MOTOR M	HVAC H	MISC X	LARGEST MOTOR	
XFMR T8 (SWTP)	MCC-520 (NEW)									5.5	2.7	377.0	6.0	47.4		
XFMR T3	LV MCC-S1A,S1B	1429	kVA	4160	3	0.0	198.4	1429	X	0.0	0.0	0.0	0.0	1429.5	0.0	
XFMR T6	MAINTENANCE SHOP	42	kVA	4160	3	0.0	5.8	42	X	0.0	0.0	0.0	0.0	42.0	0.0	
XFMR T7	MV XFMR DOCK1-PR	400	kVA	4160	3	0.0	55.5	400	X	0.0	0.0	0.0	0.0	400.0	0.0	
XFMR T5	OFFICE	35	kVA	4160	3	0.0	4.9	35	X	0.0	0.0	0.0	0.0	35.0	0.0	
XFMR T10	LV-SWBD DOWN	1500	kVA	4160	3	0.0	208.2	1500	X	0.0	0.0	0.0	0.0	1500.0	0.0	
Connected Totals:										5.5	2.7	377.0	6.0	3453.9	0.0	

LOAD CALCULATION: MV SWGR #1

	L	R	M	LM	H	X	NEC DEMAND	CALC. KVA
TOTAL LIGHTING (L) LOAD:	6						100%	6
TOTAL RECEPTACLE (R) LOAD:		3					100%	3
TOTAL MOTOR (M) LOAD:			377				50%	0
TOTAL HVAC (H) LOAD:				0			100%	377
TOTAL MISCELLANEOUS (X) LOAD:					6		125% OF LARGEST	0
TOTAL KVA:						3454	100%	6
AVERAGE AMPS @ 4160 volts						3845 KVA	100%	3454
						534 AMPS		3845 KVA
								534 AMPS

RECORD DRAWING REVISIONS ONLY



PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**

TACOMA, WASHINGTON

**TREATMENT BUILDING ONE-LINE
DIAGRAM 2**

DRAWING NO.
52A OF 65

E3A

REVISED TO CONFORM WITH
CONSTRUCTION RECORDS

DATE: 07/26/12 BY: GBW

REVISIONS	DATE	BY	DESIGNED
			O. AGUSTSSON
			D. PETERSON
			CHECKED
			APPROVED

ONE INCH AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY

FILE NAME
S12753312002-E3A.DWG

JOB No.
273-3312-004

DATE
JULY 2012

Plotted by: breckel Date: Thursday, July 26, 2012 11:18:01 AM

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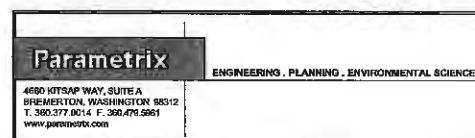
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TANK FARM ELECTRICAL
PLAN
3/16"=1'-0"



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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**
TACOMA, WASHINGTON

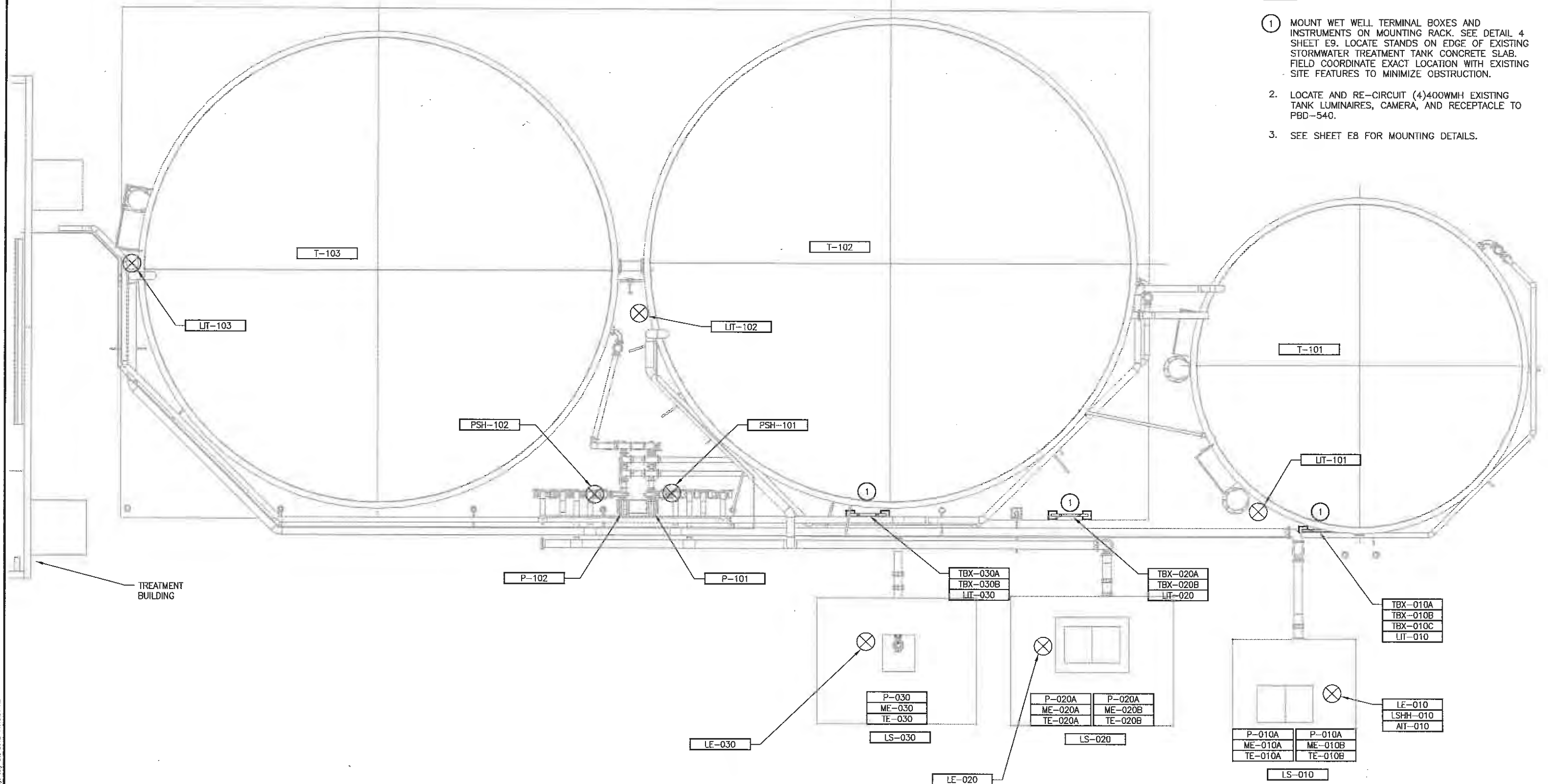
TANK FARM ELECTRICAL PLAN

DRAWING NO.
53 OF 65
E4

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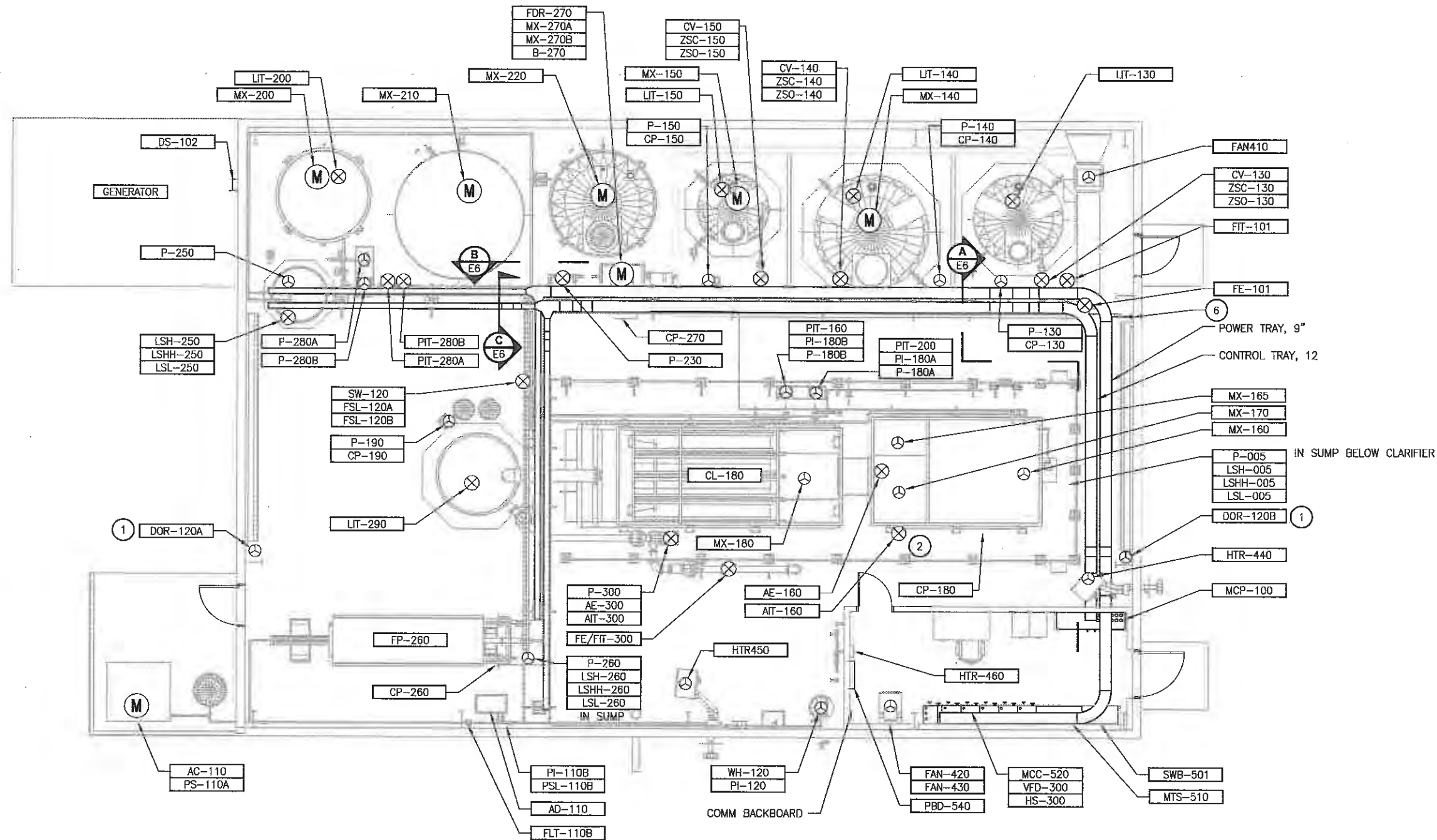
NOTES:

1. MOUNT WET WELL TERMINAL BOXES AND INSTRUMENTS ON MOUNTING RACK. SEE DETAIL 4 SHEET E9. LOCATE STANDS ON EDGE OF EXISTING STORMWATER TREATMENT TANK CONCRETE SLAB. FIELD COORDINATE EXACT LOCATION WITH EXISTING SITE FEATURES TO MINIMIZE OBSTRUCTION.
2. LOCATE AND RE-CIRCUIT (4)400WMH EXISTING TANK LUMINAIRES, CAMERA, AND RECEPTACLE TO PBD-540.
3. SEE SHEET E8 FOR MOUNTING DETAILS.



NOTES:

- 1 MOUNT DOOR CONTROLLER 4'-6" AFF.
- 2 ROUTE CABLE UNDERNEATH CATWALK TO ELEMENT MOUNTED TO OUTFALL OF SLOW MIX FLOC TANK.
3. SEE SHEET E6 FOR CABLE TRAY SUPPORT.
4. SUPPORT CONDUITS FROM CABLE TRAY PER DETAILS 1 & 3, SHEET E9.
5. SEE SHEET E8 FOR MOUNTING DETAILS.
- 6 PROVIDE AUXILIARY FRAMING TO SUPPORT CONDUIT RISERS OUT OF TRAY FOR EXIT FROM BUILDING. SEE DETAIL 1 SHEET S4 FOR BUILDING PENETRATION.



**ELECTRICAL POWER
PLAN**
3/16\"=1'-0"



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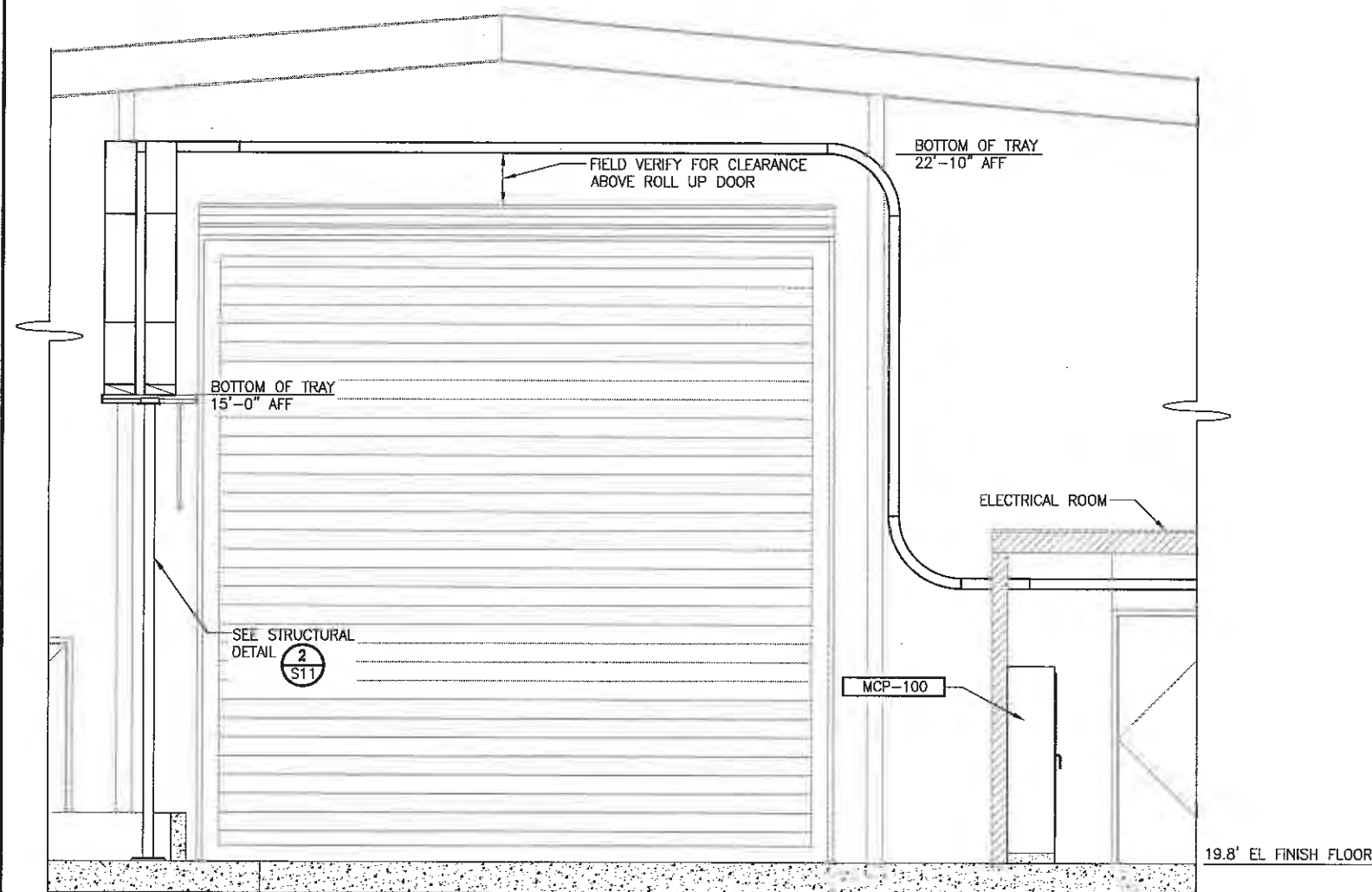
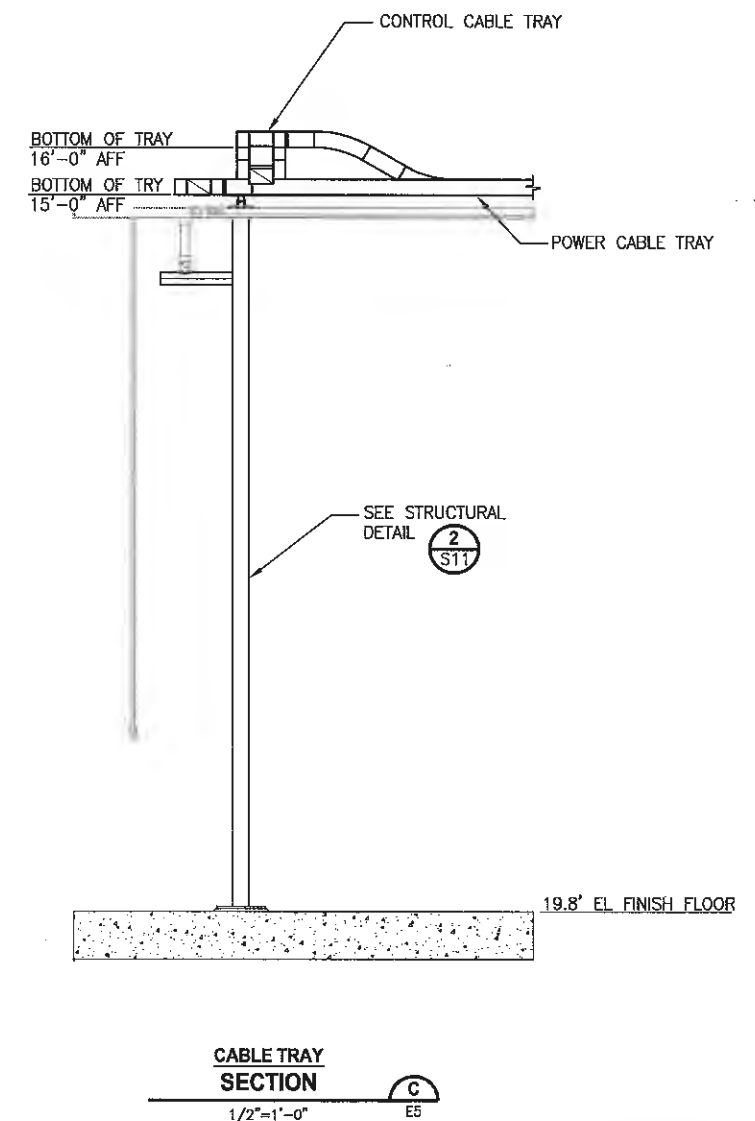
**TREATMENT BUILDING ELECTRICAL
POWER PLAN**

DRAWING NO.
54 OF 65
E5

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1. CONTRACTOR SHALL VERIFY DIMENSIONS, ELEVATIONS AND LOCATIONS PRIOR TO CONSTRUCTION.
2. ALL EXPOSED HARDWARE FOR CABLE TRAY MOUNTING WILL BE 316L STAINLESS STEEL UNLESS NOTED OTHERWISE.
3. FOR ALL CABLE TRAY INFORMATION SEE SPECIFICATION UNLESS NOTED OTHERWISE.


$$3/8^u = 1^1 - 0^u$$
$$3/8^u = 1^1 - 0^u$$

E3

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TREATMENT BUILDING ELECTRICAL SECTIONS

PAGE NO.
55 OF 65

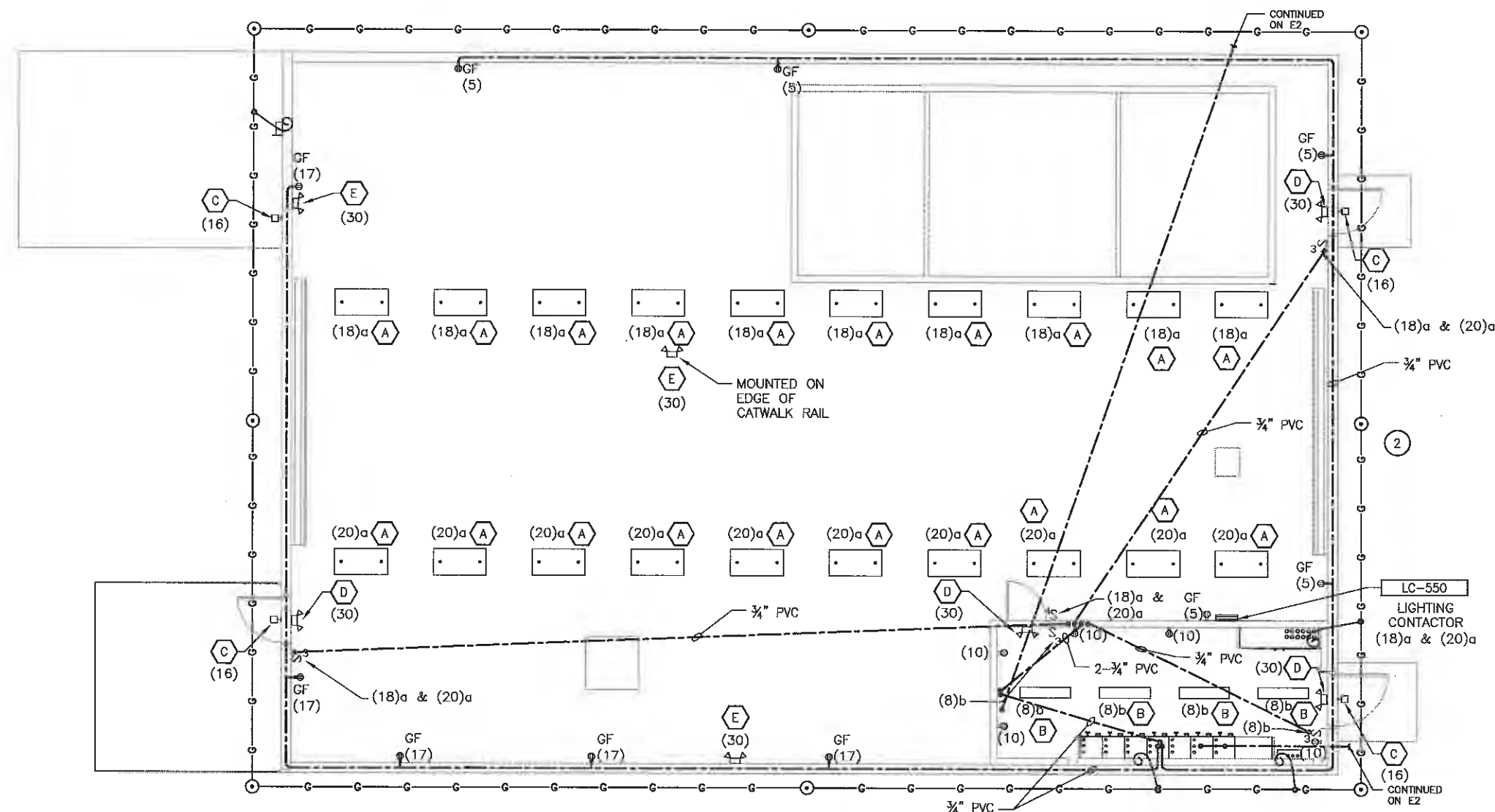
E6

File: SU2753312002-E5.dwg Plotted by: brcatkat Date: Thursday, July 25, 2012 11:19:35 AM

LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER	CATALOG NO.	DESCRIPTION	VOLTS	LAMPS	FIXTURE VA
A	HOLOPHANE	HB324632N1ACLMVOLT1/41/2GEB10ISE L14	INDOOR, HIGH BAY, FLUORESCENT, DAMP LISTED, REFLECTOR W/UPLIGHT, CLEAR ACRYLIC LENS, ONE FOUR LAMP AND TWO LAMP ELECTRONIC INSTANT START HIGH FACTOR BALLAST, AND EMERGENCY BATTERY PACK, OR EQUAL.	120	6-32W T8	167
B	HOLOPHANE	HISS04D-SWWP042EP11	INDOOR, INDUSTRIAL LINEAR FLUORESCENT, ENHANCED REFLECTOR, INSTANT START BALLAST, W/WIRE GUARD, OR EQUAL.	120	2-32WT8	50
C	LSI	PTWS 3 70 CFL F 120 BRZ PC120 EM1	ENTRY LIGHT, WALL MOUNT, GLASS LENS, BRONZE FINISH, FULL CUTOFF, W/PHOTOCELL, BATTERY BACK-UP, WET LISTED, OR EQUAL.	120	70W CFL	70
D	HOLOPHANE	MSTD130BBGSCC1	COMBINATION EXIT/EGRESS, DUAL SWIVEL HEADS, LED BACKLIT, TEST SWITCH, STATUS INDICATOR, OR EQUAL.	120	LED/T5	11
E	HOLOPHANE	C11236WWB2	INDOOR, DAMP RATED, LEAD ACID BATTERY, HOLOGEN, 90 MINUTE, DUAL HEAD, EMERGENCY LIGHT, OR EQUAL.	120	2-12W HALGN	20

NOTES:

- EQUIP EVERY THIRD FIXTURE WITH EXTRA BALLAST AND WIRE THE OUTER LAMPS UNSWITCHED FOR WALK THROUGH LIGHTING.
- GROUNDING SYSTEM, FURNISH AND INSTALL JUMPERS TO BUILDING STRUCTURE, PIPING, CABLE TRAYS, EQUIPMENT 10HP AND LARGER, MCP-100, MCB-500, MCC-520, AND OTHER SYSTEMS AS REQUIRED BY NATIONAL ELECTRICAL CODE AND LOCAL AUTHORITY HAVING JURISDICTION.
- SEE GROUNDING SYSTEM DIAGRAM, SHEET E3.



LIGHTING PLAN
SCALE: 3/16" = 1'-0"

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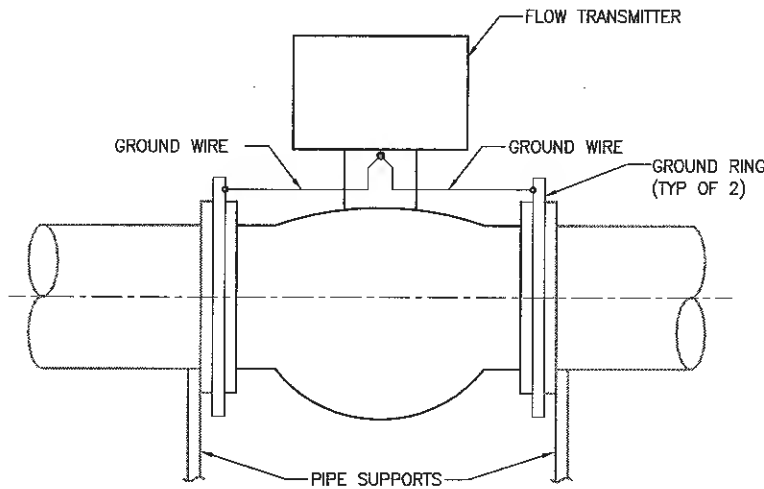
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**TREATMENT BUILDING LIGHTING
AND GROUNDING PLAN**

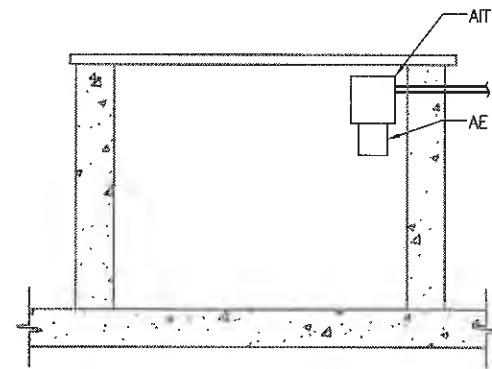
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DRAWING NO.
56 OF 65
E7

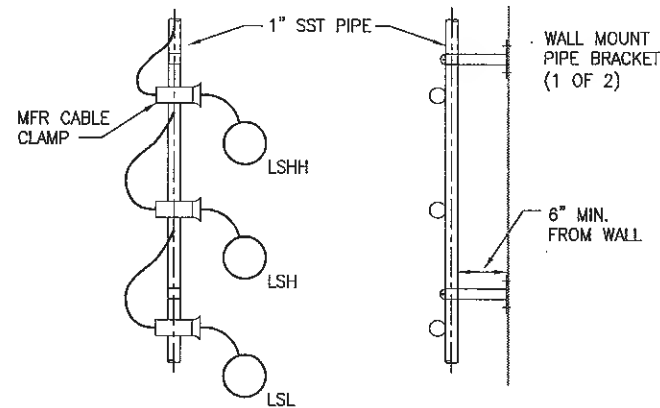
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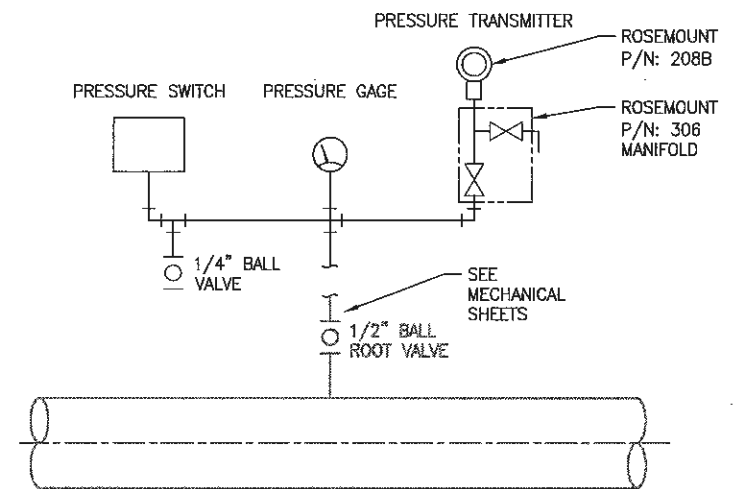
**MAGNETIC FLOWMETER
DETAIL**
SCALE : NONE



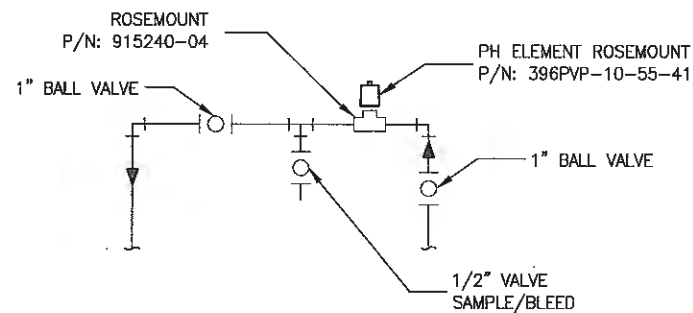
**LIFT STATION #1 LEL TRANSMITTER
DETAIL**
SCALE : NONE



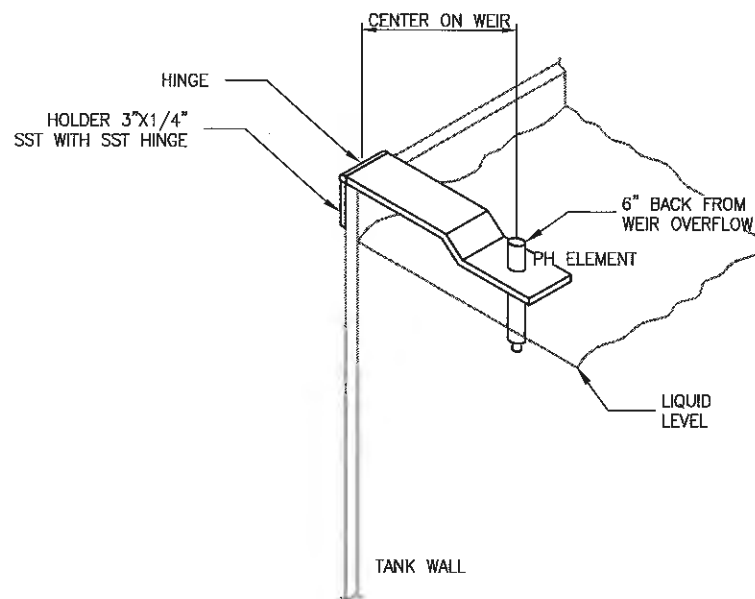
**FLOAT SWITCH
DETAIL**
SCALE : NONE



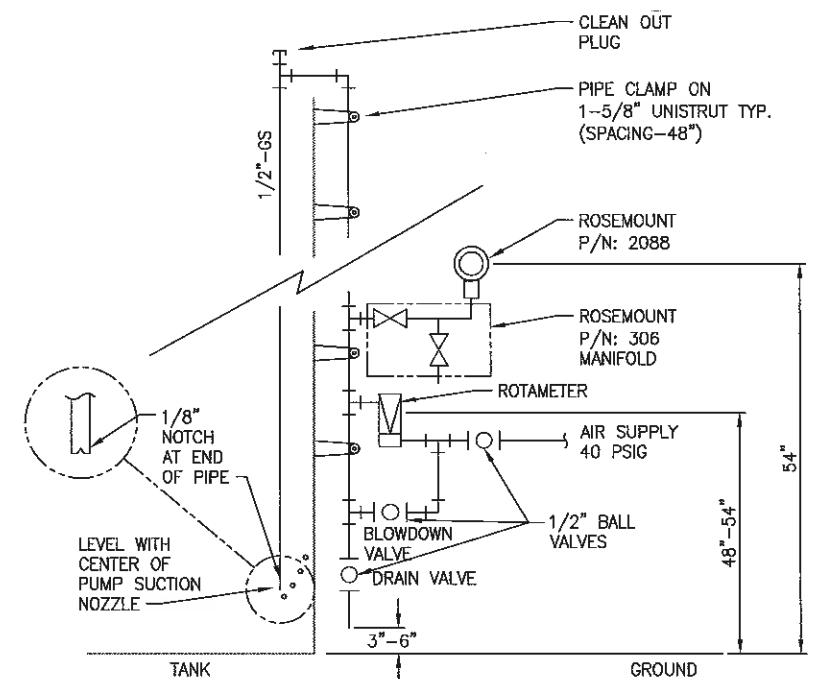
**PRESSURE TRANSMITTER / GAGE / SWITCH
CONSTRUCTION 1/2" NPT SS
DETAIL**
SCALE : NONE



**EFFLUENT OUTFALL pH
DETAIL**
SCALE : NONE



**CHEM. MIX TANK pH
DETAIL**
SCALE : NONE



**STORAGE TANK LEVEL
DETAIL**
SCALE : NONE

TANK
T-101
T-102
T-103

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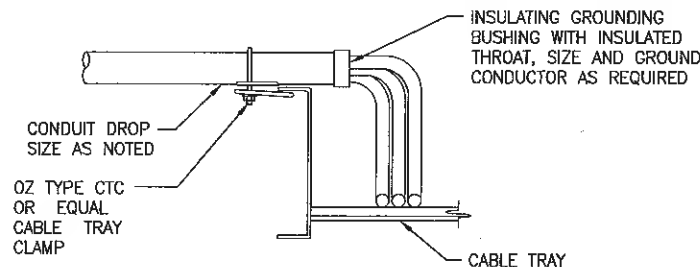
ELECTRICAL DETAILS I

DRAWING NO.
57 OF 65
E8

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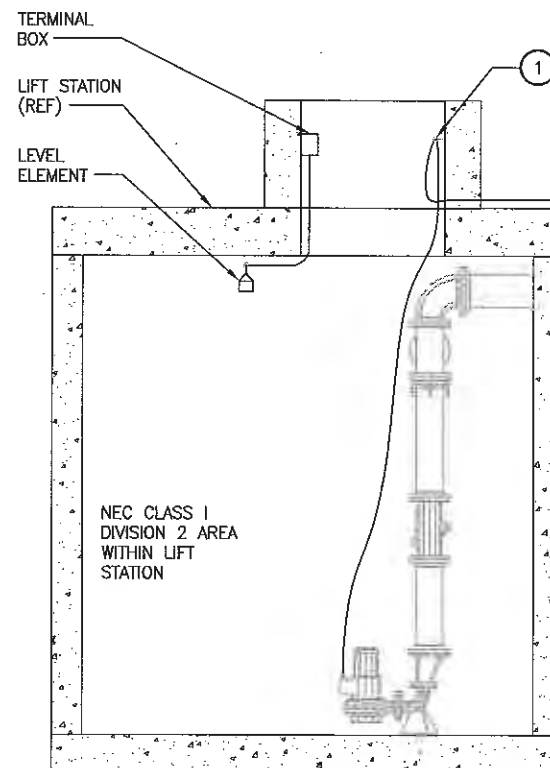
NOTE:

FASTENING HARDWARE IN TRAY SHALL BE ROUNDED AND HAVE NO SHARP CORNERS

CONDUIT DROP INTO CABLE TRAY

DETAIL

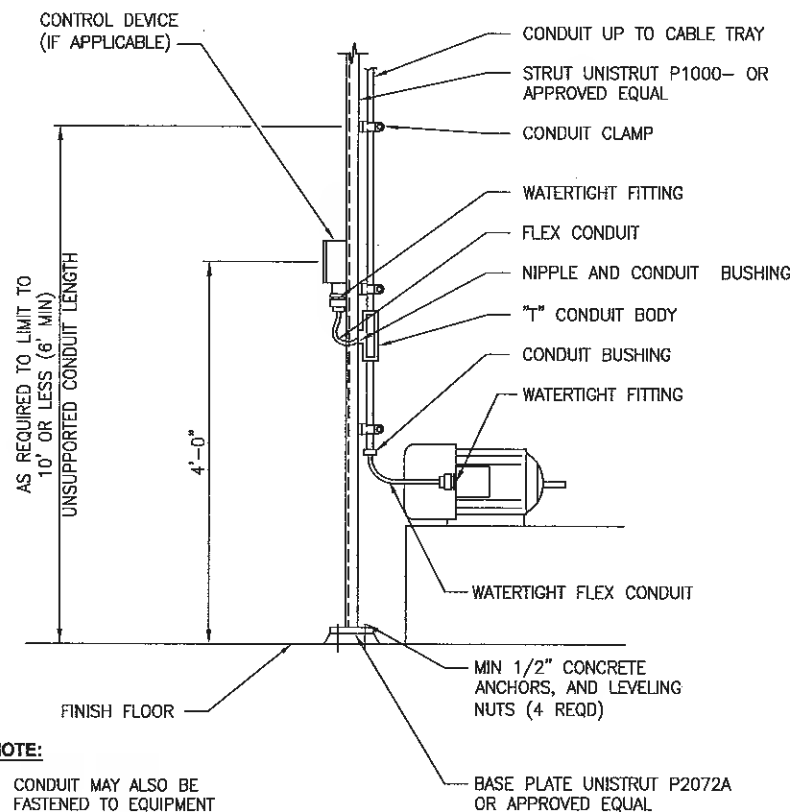
SCALE : NONE



TYPICAL LIFT STATION

DETAIL

SCALE : NONE



NOTE:

CONDUIT MAY ALSO BE FASTENED TO EQUIPMENT IN LIEU OF STRUT, PROVIDING IT DOES NOT INTERFERE WITH PROCESS OPERATION. DO NOT PENETRATE TANKS, ETC.

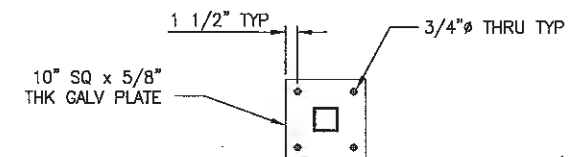
OVERHEAD FEED FROM CABLE TRAY

DETAIL

SCALE : NONE

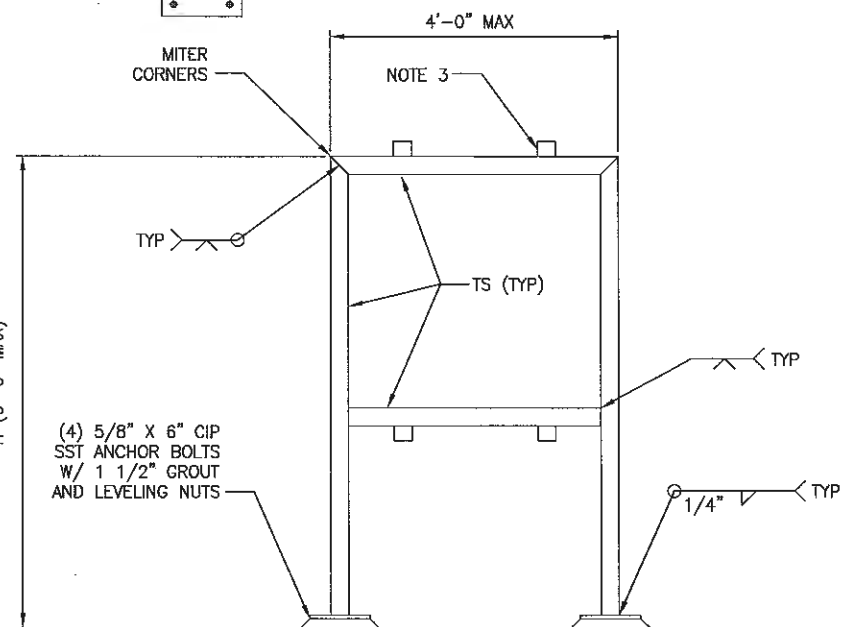
NOTE:

1. COIL AN EXTRA 12' OF EXTRA CONDUCTOR IN WELL FOR PUMP REMOVAL AND CABLE GRIPS SIZED ACCORDINGLY.



NOTES:

1. TS SHALL BE 3X3X0.188 MINIMUM.
2. FOR PANELS WITH "H" GREATER THAN 4'-0", ONE HORIZONTAL MEMBER MUST BE LOCATED WITHIN THE MIDDLE THIRD OF THE FRAME HEIGHT. PROVIDE ADDITIONAL MEMBERS AS NECESSARY FOR PANEL MOUNTING.
3. PROVIDE L 2 1/2"x 2 1/2" X 1/4" X 0'-3". WELD ALL AROUND TO TS: TYP AT EACH PANEL MOUNT.
4. TOTAL WEIGHT OF PANEL(S) SHALL NOT EXCEED 500LBS IN EACH MODULE.
5. GRIND ALL WELDS AND SHARP CORNERS SMOOTH.
6. PROVIDE 1/4" PLATE, SIZED AS REQUIRED, FOR MOUNTING EQUIPMENT.
7. HOT DIP GALVANIZE AFTER FABRICATION.



PANEL AND INSTRUMENT MOUNTING RACK

DETAIL

SCALE : NONE

NOTES:

1. ALL FASTENERS AND HARDWARE SHALL BE STAINLESS STEEL.
2. ALL STRUT SHALL BE FACTORY GALVANIZED.

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STORMWATER IMPROVEMENTS**

TACOMA, WASHINGTON

ELECTRICAL DETAILS II

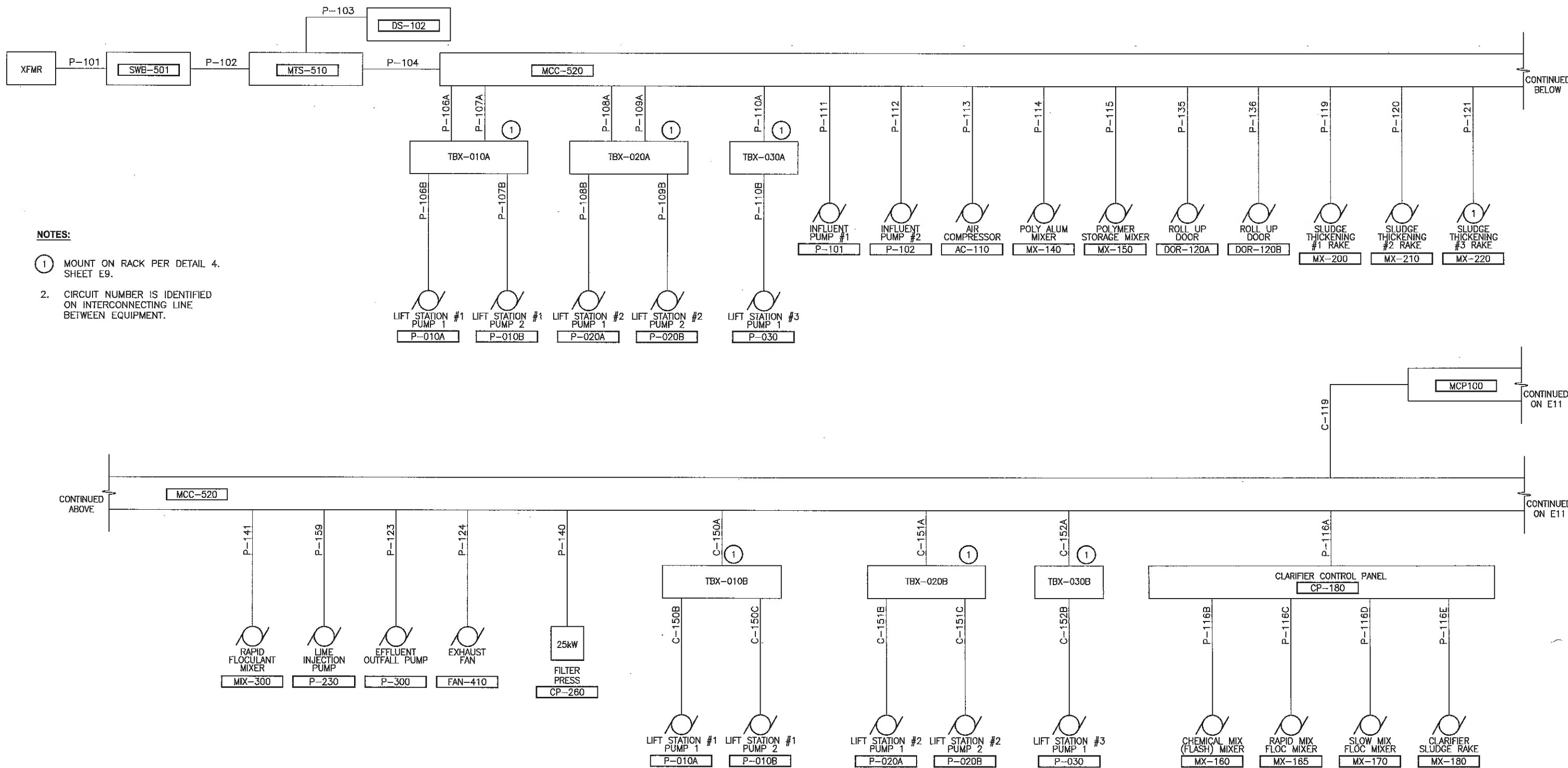
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58 OF 65

E9

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CONTINUED ABOVE

CONTINUED BELOW

CONTINUED ON E11

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**ELECTRICAL INTERCONNECTION
DIAGRAM I**

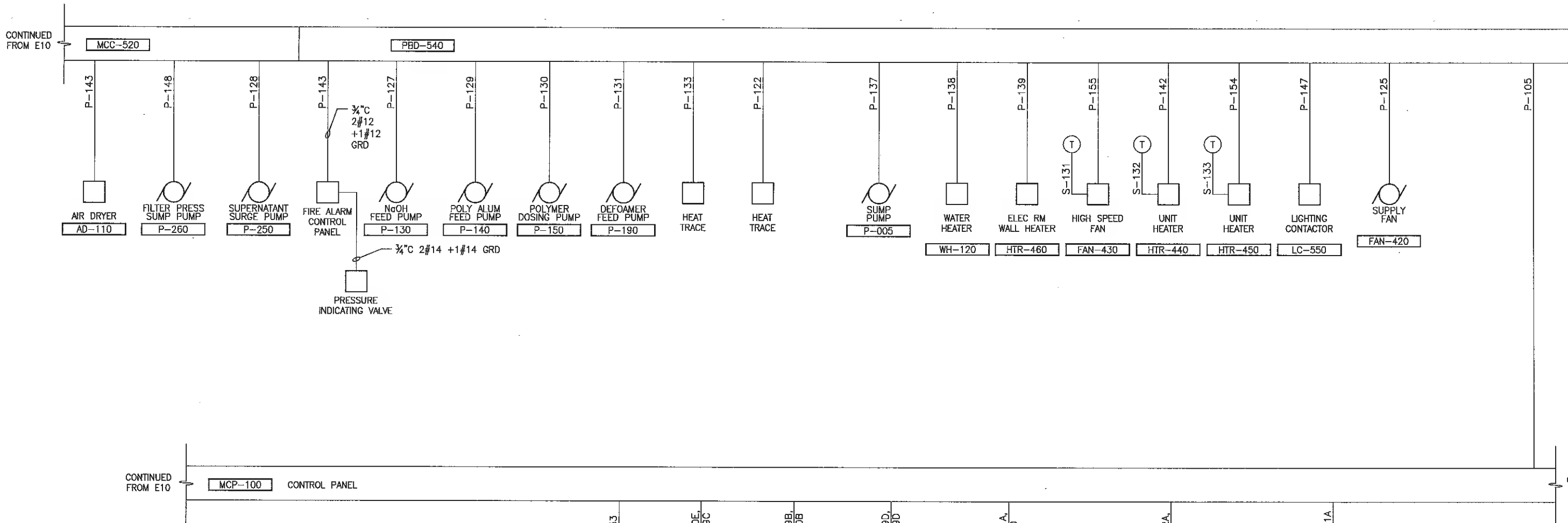
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E10

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File: SU2753312002-E10.dwg Plotted by: brooklet Date: Thursday, July 26, 2012 11:18:16 AM



NOTES:

1. MOUNT ON RACK PER DETAIL 4, SHEET E9.
2. INSTALL WITHIN LIFT STATION. SEE DETAIL 2 SHEET 9.
3. CIRCUIT NUMBER IS IDENTIFIED ON INTERCONNECTING LINE BETWEEN EQUIPMENT.

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**ELECTRICAL INTERCONNECTION
DIAGRAM II**

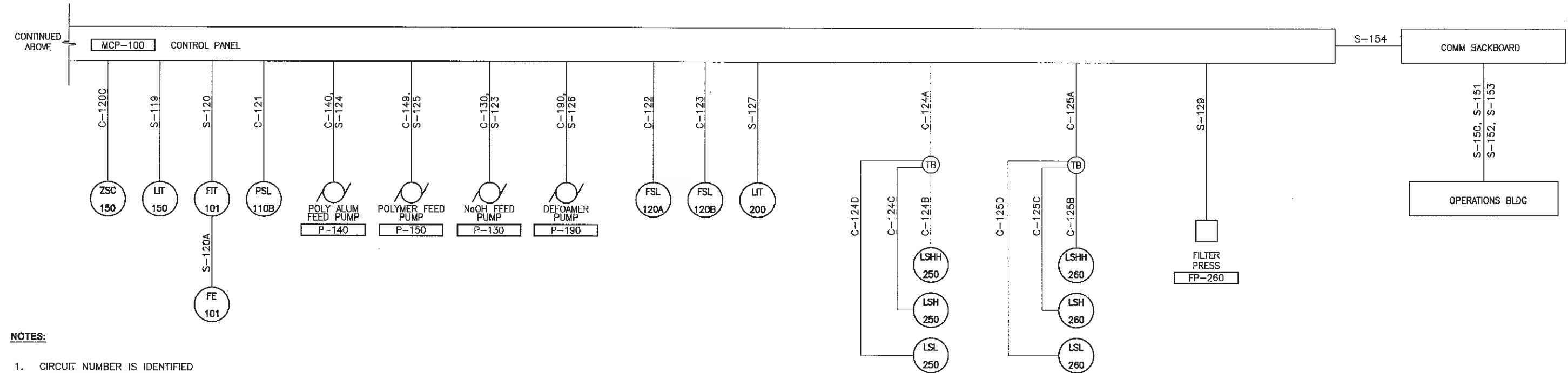
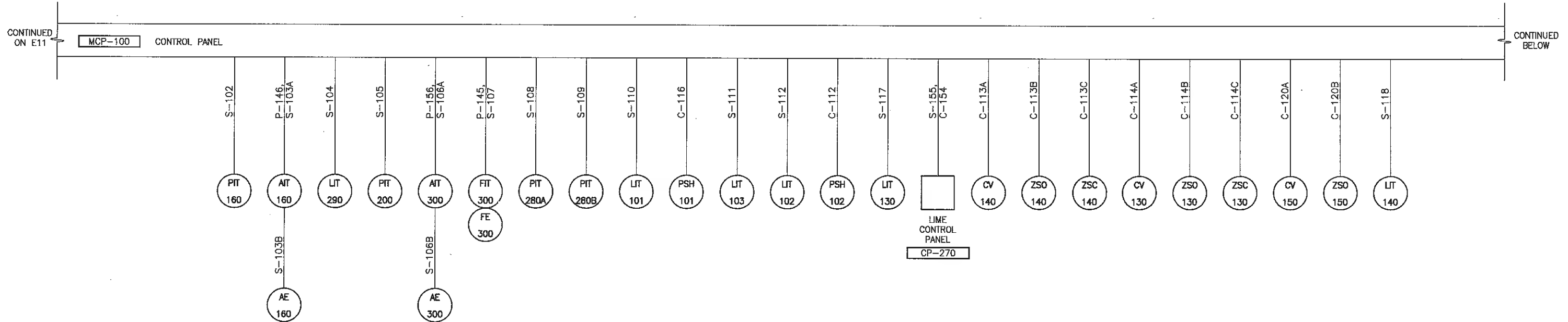
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E11

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NOTES:

1. CIRCUIT NUMBER IS IDENTIFIED ON INTERCONNECTING LINE BETWEEN EQUIPMENT.

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**ELECTRICAL INTERCONNECTION
DIAGRAM III**

DRAWING NO.
61 OF 65
E12

STATUS: NEW

NEUTRAL BUS: NO

GROUND BUS: YES

MAIN BREAKER SIZE: NA

MINIMUM BUS SIZE: 800 AMPS

FAULT CURRENT BRACING: 42,000 AMPS, RMS SYMMETRICAL

PANEL: PBD-540

VOLTAGE RATING: 120/240 VOLTS, 1 PHASE, 3 WIRE

BUS RATING: 100

MAIN BREAKER: NONE

FEED: BOTTOM

MOUNTING: FLUSH

BRACING: 10 KA SYM

LOCATION: IN MCC-520
FED FROM: XFMR-530

		CONNECTED LOAD							kVA						
EQUIPMENT NUMBER	EQUIPMENT NAME OR LOAD DESCRIPTION	LOAD SIZE	LOAD UNIT	VOLT	PH	HP	AMPS	KVA	Load Type	LTG L	RCPT R	MOTOR M	HVAC H	MISC X	LARGEST MOTOR
AC-110	Air Compressor	75	HP	480	3	75.0	96.0	79.8	LM	0.0	0.0	0.0	0.0	0.0	79.8
AD-110	Air Dryer	1.42	KW	480	3	0.0	1.7	1.4	M	0.0	0.0	1.4	0.0	0.0	0.0
CP-180	Clarifier Control Panel	6.5	KW	480	3	0.0	7.8	6.5	X	0.0	0.0	0.0	0.0	6.5	0.0
CP-260	Filter Press Control Panel	35	KW	480	3	0.0	42.1	35.0	X	0.0	0.0	0.0	0.0	35.0	0.0
DOR-120A	Roll up Door, West	1	HP	480	3	1.0	2.1	1.7	M	0.0	0.0	1.7	0.0	0.0	0.0
DOR-120B	Roll up Door, East	1	HP	480	3	1.0	2.1	1.7	M	0.0	0.0	1.7	0.0	0.0	0.0
FAN-410	Exhaust Fan	1.5	HP	480	3	1.5	3.0	2.5	H	0.0	0.0	0.0	2.5	0.0	0.0
MX-140	Polymer Alum Tank Mixer	2	HP	480	3	2.0	3.4	2.8	M	0.0	0.0	2.8	0.0	0.0	0.0
MX-150	Polymer Storage Mixer	1	HP	480	3	1.0	2.1	1.7	M	0.0	0.0	1.7	0.0	0.0	0.0
MX-200	Sludge Thickening #1 Rake	1	HP	480	3	1.0	2.1	1.7	M	0.0	0.0	1.7	0.0	0.0	0.0
MX-210	Sludge Thickening #2 Rake	1	HP	480	3	1.0	2.1	1.7	M	0.0	0.0	1.7	0.0	0.0	0.0
MX-220	Sludge Thickening #3 Rake	1	HP	480	3	1.0	2.1	1.7	M	0.0	0.0	1.7	0.0	0.0	0.0
MX-300	Floculant Tank Rapid Mixer	1	HP	480	3	1.0	2.1	1.7	M	0.0	0.0	1.7	0.0	0.0	0.0
P-010A	Lift Station 1 Pump 1	25	HP	480	3	25.0	34.0	28.3	M	0.0	0.0	28.3	0.0	0.0	0.0
P-010B	Lift Station 1 Pump 2	25	HP	480	3	25.0	34.0	28.3	M	0.0	0.0	28.3	0.0	0.0	0.0
P-020A	Lift Station 2 Pump 1	25	HP	480	3	25.0	34.0	28.3	M	0.0	0.0	28.3	0.0	0.0	0.0
P-020B	Lift Station 2 Pump 2	25	HP	480	3	25.0	34.0	28.3	M	0.0	0.0	28.3	0.0	0.0	0.0
P-030	Lift Station 3 Pump 1	25	HP	480	3	25.0	34.0	28.3	M	0.0	0.0	28.3	0.0	0.0	0.0
P-101	Influent Pump 1	50	HP	480	3	50.0	65.0	54.0	M	0.0	0.0	54.0	0.0	0.0	0.0
P-102	Influent Pump 2	50	HP	480	3	50.0	65.0	54.0	M	0.0	0.0	54.0	0.0	0.0	0.0
P-250	Supernatant Surge Pump	2	HP	480	3	2.0	3.4	2.8	M	0.0	0.0	2.8	0.0	0.0	0.0
P-260	Filter Press Pump Pump	0.75	HP	480	3	0.8	1.6	1.3	M	0.0	0.0	1.3	0.0	0.0	0.0
P-300	Effluent Pump to Hylebos	20	HP	480	3	20.0	27.0	22.4	M	0.0	0.0	22.4	0.0	0.0	0.0
VFD-230	Lime Injection Pump VFD*	1.5	HP	480	3	1.5	3.0	2.5	M	0.0	0.0	2.5	0.0	0.0	0.0
XFMR-530	PBD-540 Transformer									5.5	2.7	2.2	3.5	5.9	
	Connected Totals:									5.5	2.7	297.2	6.0	47.4	79.8

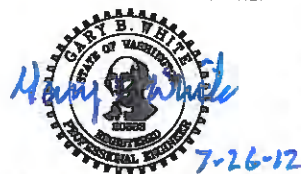
LOAD CALCULATION: MCC-520			CONNECTED KVA	METHOD	NEC DEMAND	CALC. KVA
TOTAL LIGHTING (L) LOAD:	L	6		ALL @	100%	6
TOTAL RECEPTACLE (R) LOAD:	R	3		FIRST 10KVA @	100%	3
				REMAINDER OVER 10KVA	50%	0
TOTAL MOTOR (M) LOAD:	M	297		ALL @	100%	297
	LM	80		125% OF LARGEST	125%	100
TOTAL HVAC (H) LOAD:	H	6		ALL @	100%	6
TOTAL MISCELLANEOUS (X) LOAD:	X	47		ALL @	100%	47
TOTAL KVA:			439 KVA			459 KVA
AVERAGE AMPS @	480 volts		528 AMPS			552 AMPS

CIRCUIT DESCRIPTION	VA	CKT	BRKR	L1 L2	BRKR	CKT	VA	CIRCUIT DESCRIPTION
WATER HEATER, WH-120	744	1	20 / 1	1	20 / 1	2	936	POLYMER DOSING PUMP, P-150
		3	30 / 1	2	30 / 1	4	1,000	MAIN CONTROL PANEL, MCP-100
TREATMENT AREA RECEPIS	900	5	20 / 1	1	20 / 1	6	22	DEFOAMER FEED PUMP, P-190
NaOH FEED PUMP, P-130	29	7	20 / 1	2	20 / 1	8	200	ELECTRICAL RM LIGHTS
POLY ALUM FEED PUMP, P-140	29	9	20 / 1	1	20 / 1	10	900	ELECTRICAL RM RECEPIS
PROCESS AREA UNIT HEATER, HTR-440	312	11	20 / 1	2	20 / 2	12	1,125	ELECTRIC RM WALL HEATER, HTR-460
ELECTRICAL RM SUPPLY FAN, FAN-420	312	13	20 / 1	1		14	1,125	
PROCESS AREA UNIT HEATER, HTR-450	312	15	20 / 1	2	20 / 1	16	280	EXTERIOR LIGHTS
TREATMENT AREA RECEPIS	900	17	20 / 1	1	20 / 1	18	1,670	LIGHTING CONTACTOR, LC-550
ELECTRICAL RM COOLING FAN, FAN-430	312	19	20 / 1	2	20 / 1	20	1,670	LIGHTING CONTACTOR, LC-550
TREATMENT AREA SUMP PUMP, P-005	1,176	21	20 / 1	1	30 / 1	22		
TELEPHONE BOARD	90	23	20 / 1	2	20 / 2	24		SPARE
AIR DRYER	250	25	20 / 1	1		26		
FIRE ALARM CONTROL PANEL	100	27	20 / 1	2	20 / 1	28	50	EMERGENCY FAN SHUTDOWN
SPARE		29	20 / 1	1	20 / 1	30	104	EGRESS LIGHTS
SPARE		31	20 / 1	2	20 / 1	32		SPARE
SPARE		33	20 / 1	1	20 / 1	34	50	PHOTOCELL AT TANK 102
SPARE		35	20 / 1	2	20 / 1	36		SPARE
SPARE		37	20 / 1	1	20 / 1	38		SPARE
HEAT TRACE (GFICB 2 SPC)	1,000	39	20 / 1	2	20 / 1	40		
HEAT TRACE (GFICB 2 SPC)	1,000	41	20 / 1	1	20 / 1	42		-
LINE LOADS:	7,466	VA(L1)					9,132	VA(L2)
TOTAL LOAD =	16.6	KVA =			69	Amps Average		

LOAD CALCULATION:		CONNECTED VA	METHOD	NEC DEMAND	CALC. VA
TOTAL LIGHTING (L) LOAD	L	3924	ALL @	100%	3924
TOTAL RECEPTACLE (R) LOAD:	R	2700	FIRST 10KVA @	100%	2700
			REMAINDER OVER 10KVA	50%	0
TOTAL MOTOR (M) LOAD:	M	1016	ALL @	100%	1016
	LM	1176	125% OF LARGEST	125%	1470
TOTAL HVAC (H) LOAD:	H	3498	ALL @	100%	3498
TOTAL MISCELLANEOUS (X) LOAD:	X	4284	ALL @	100%	4284
TOTAL VA:		16598 VA			16892 VA
AVERAGE AMPS @		69 AMPS			70 AMPS
VOLTAGE PHASE TO PHASE=	240				

FUTURE LOAD: 500 KVA,
600 AMP

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PROJECT NAME

**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**

TACOMA WASHINGTON

CALCULATIONS AND PANEL SCHEDULE

DRAWING NO.
62 OF 65

E13

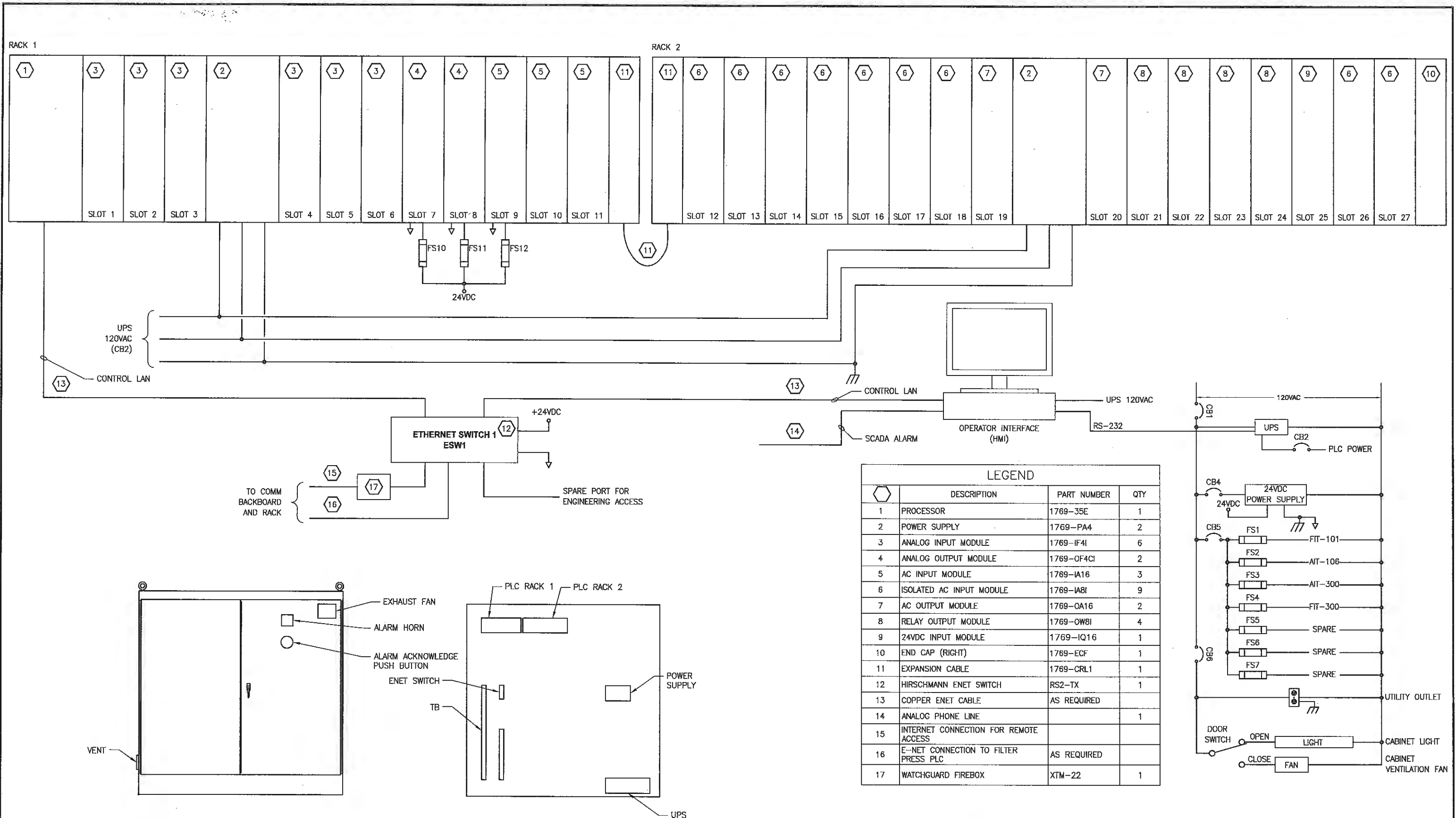
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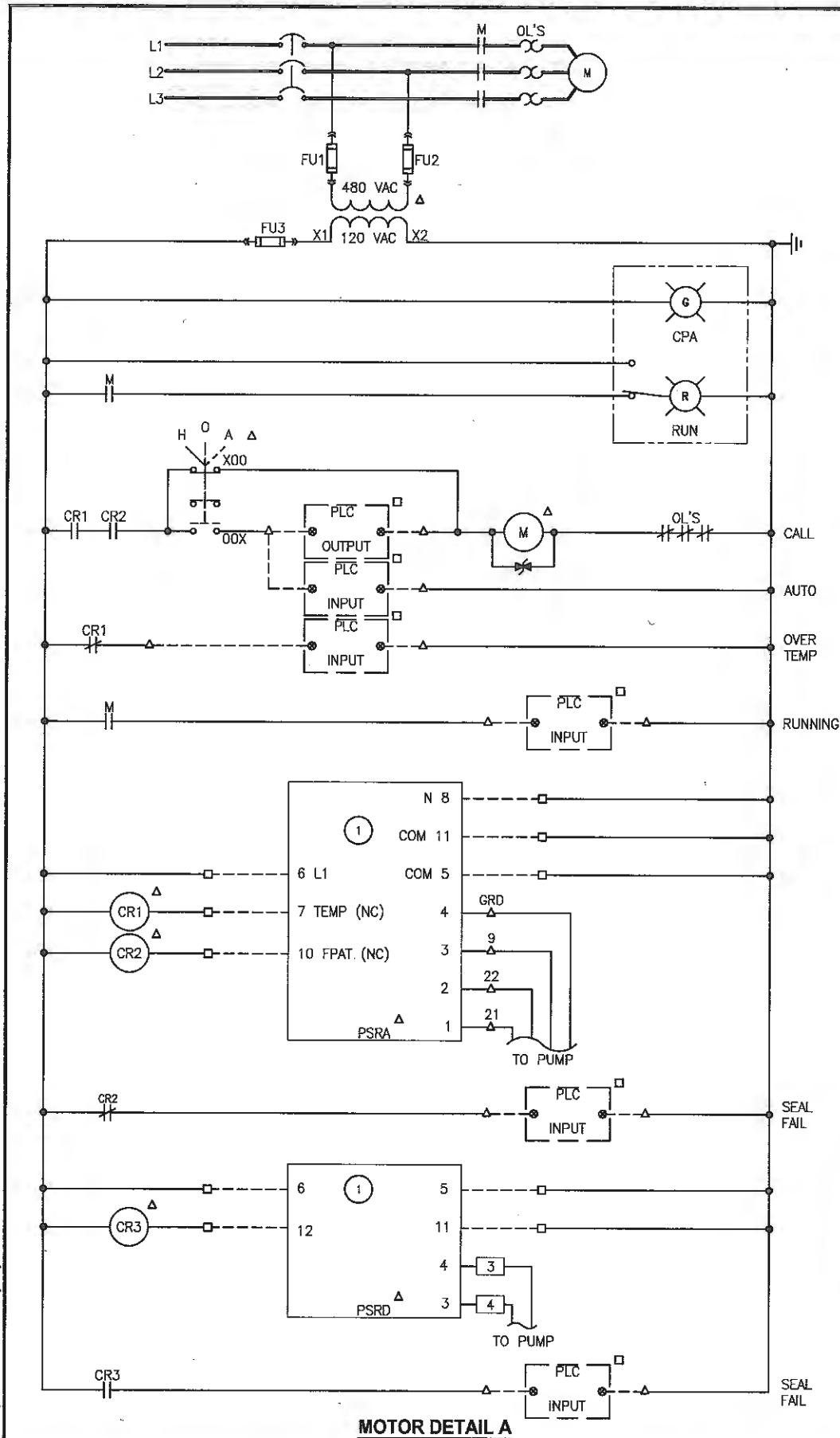
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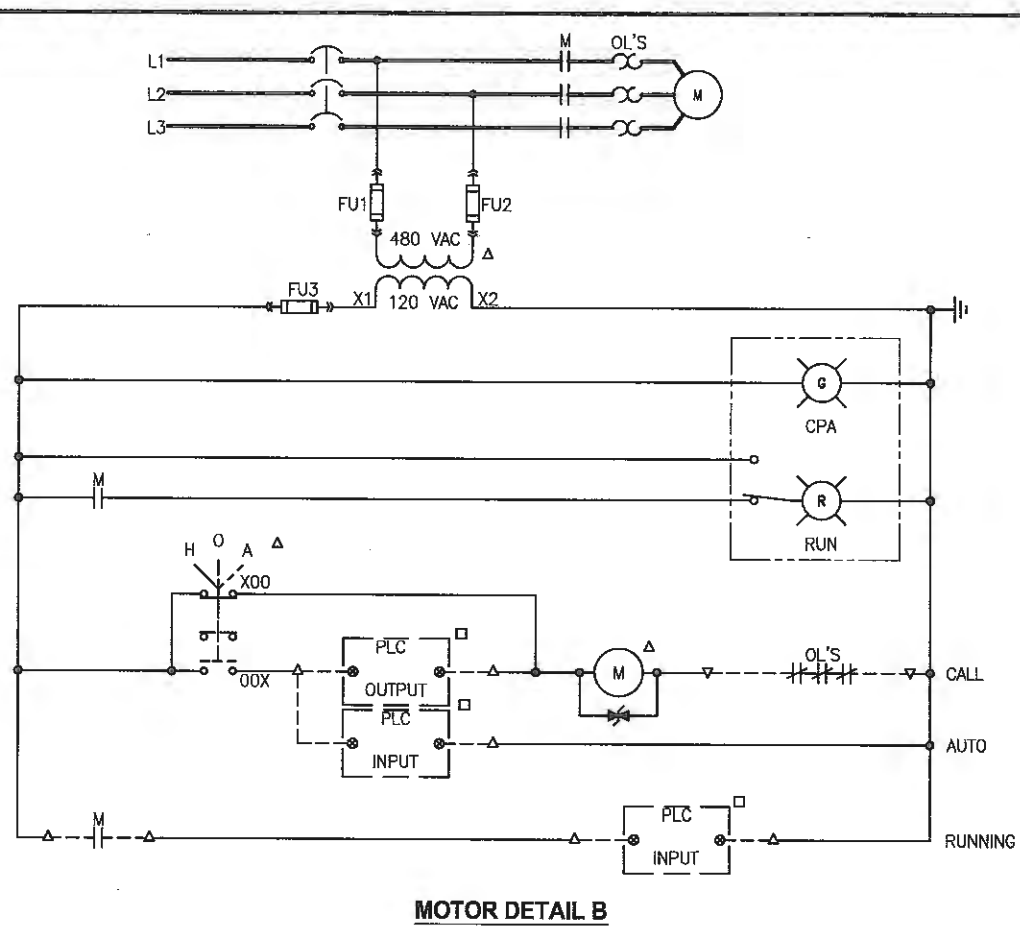
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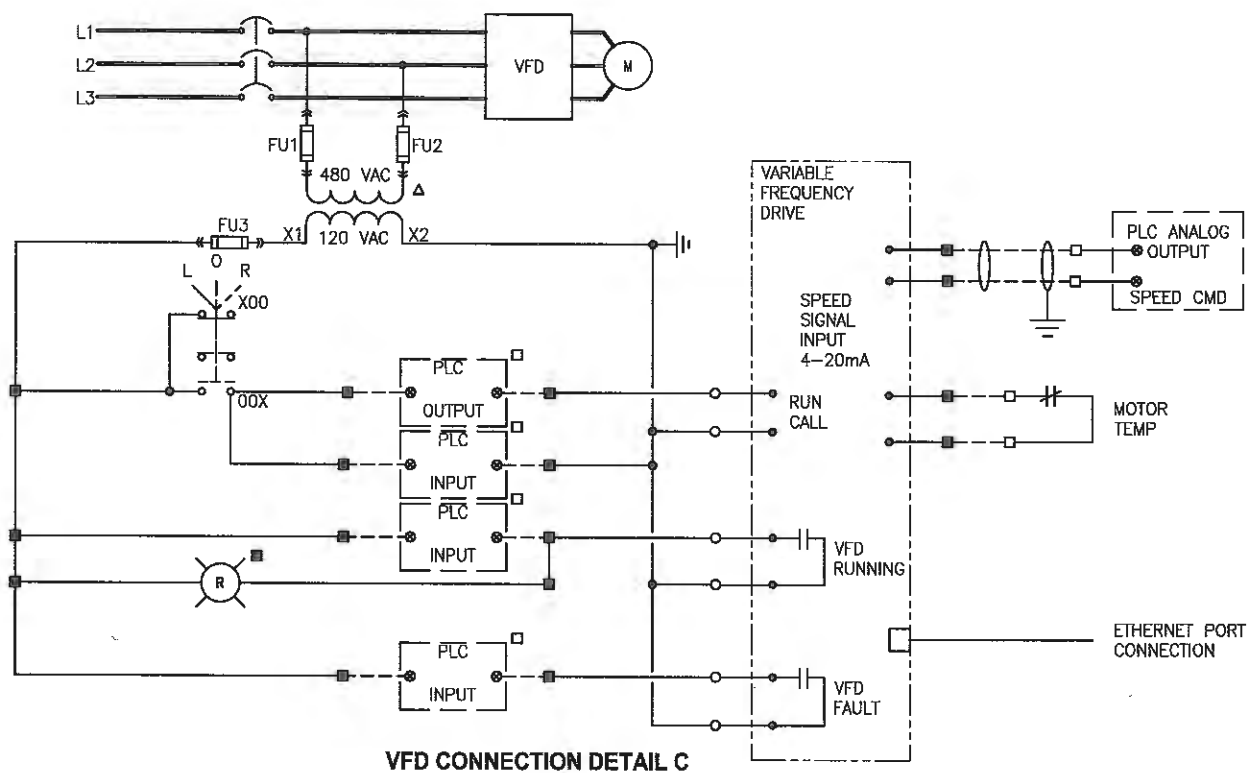
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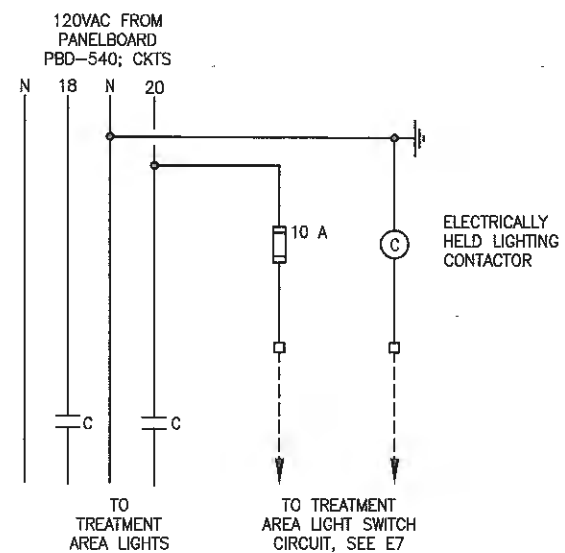
MOTOR DETAIL A



MOTOR DETAIL B



VFD CONNECTION DETAIL C



LIGHTING CONTACTOR DETAIL

KEY NOTES:

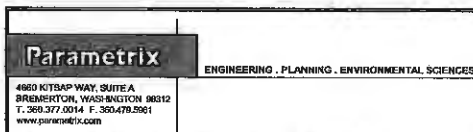
- (2) PUMP SAFE RELAYS (PSRA & PSRD) ARE PROVIDED FOR EACH PUMP BY THE PUMP SUPPLIER.
- NOT ALL CONTROL CONDUCTORS FROM THE MOTOR ARE USED. CLIP UNUSED CONDUCTORS AND SEAL CABLE END.

- FIELD WIRE
- MCP DEVICE
- PLC I/O
- ▽ FIELD OR MOTOR DEVICE
- △ MOTOR STARTER DEVICE OR TERMINAL
- VFD DEVICE

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PROJECT NAME
**SCHNITZER STEEL
STORMWATER IMPROVEMENTS**

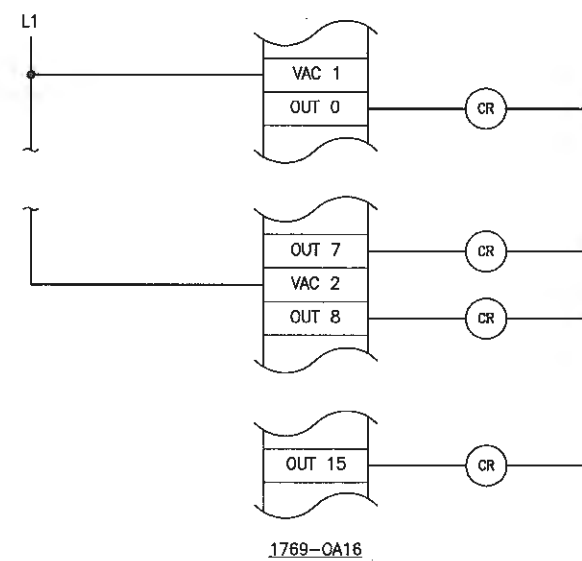
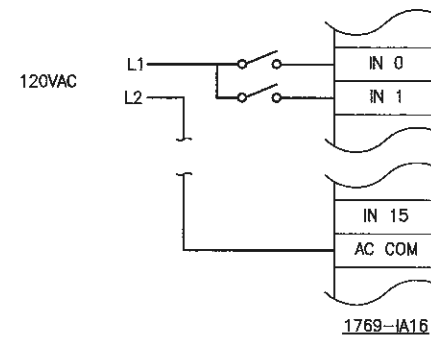
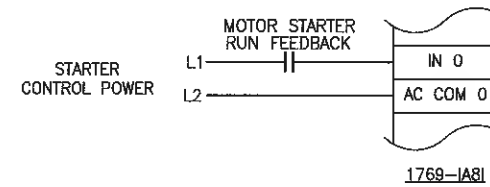
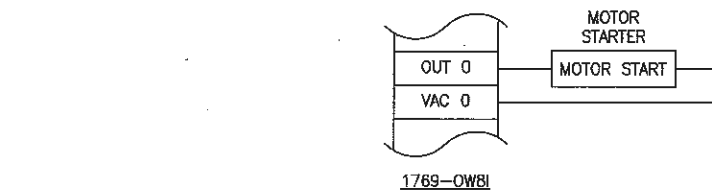
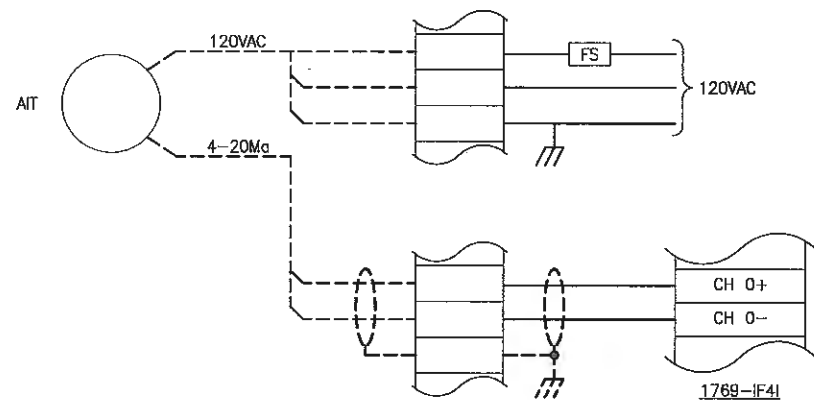
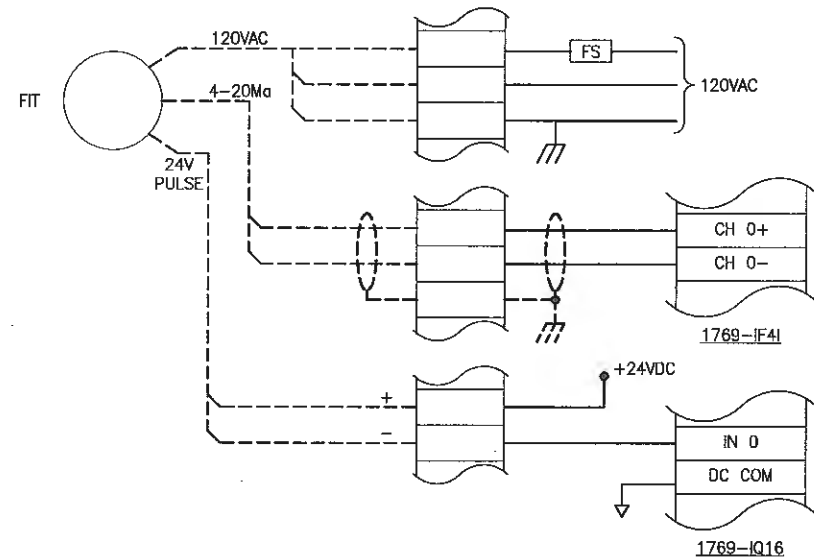
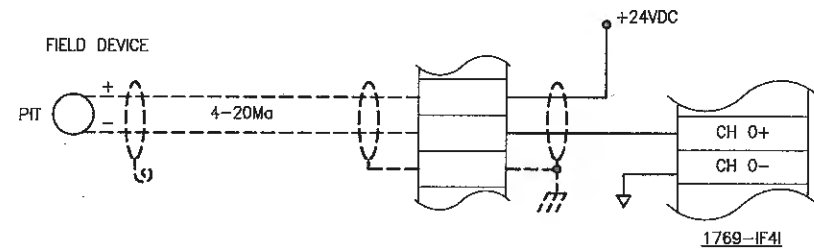
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CONTROL DIAGRAMS

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E15

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			DRAWN
			D. PETERSON
			CHECKED
			APPROVED

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TACOMA, WASHINGTON

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65 OF 65

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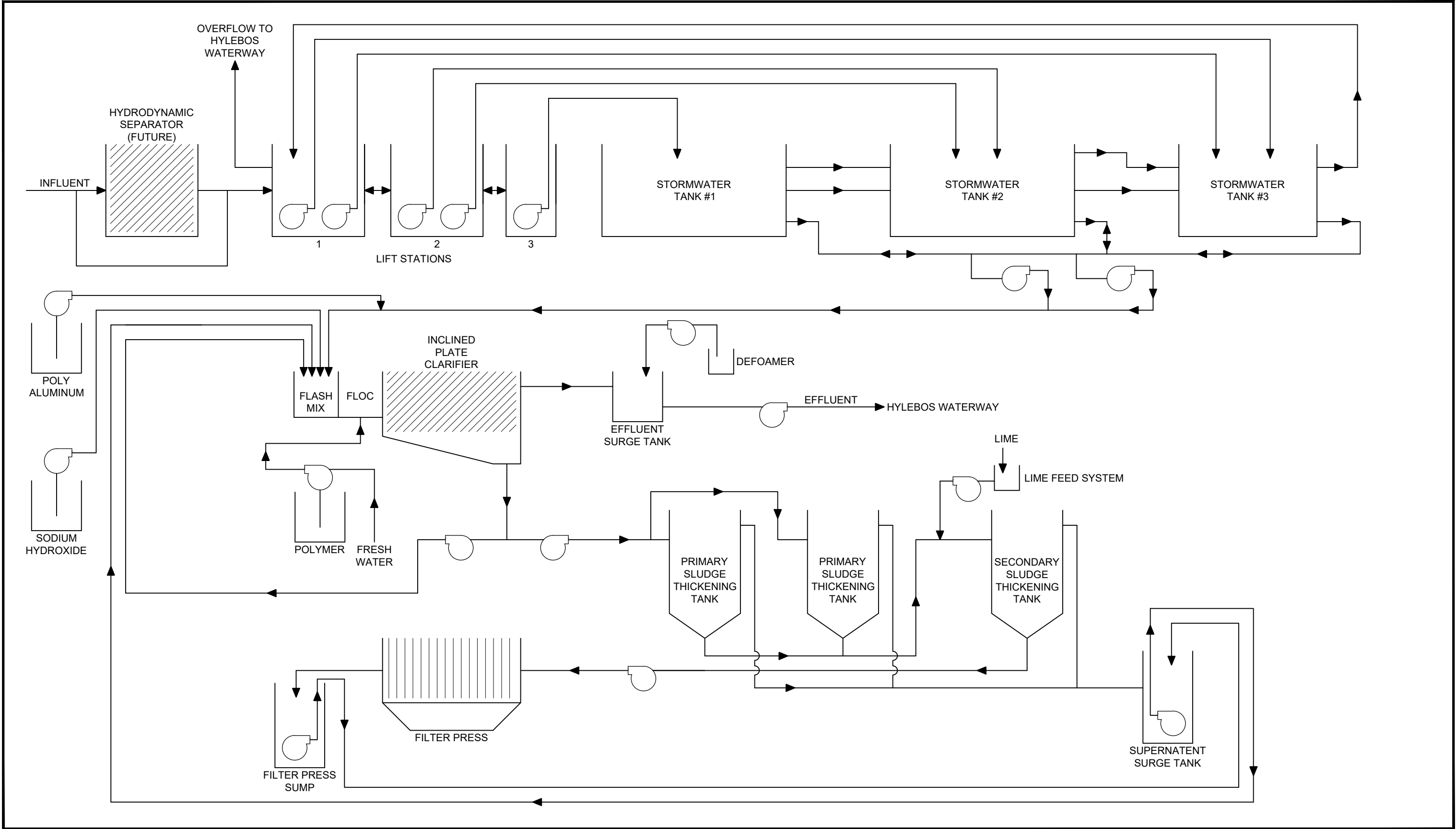
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Appendix D.2

Process Flow Diagram of the Stormwater Treatment Facility

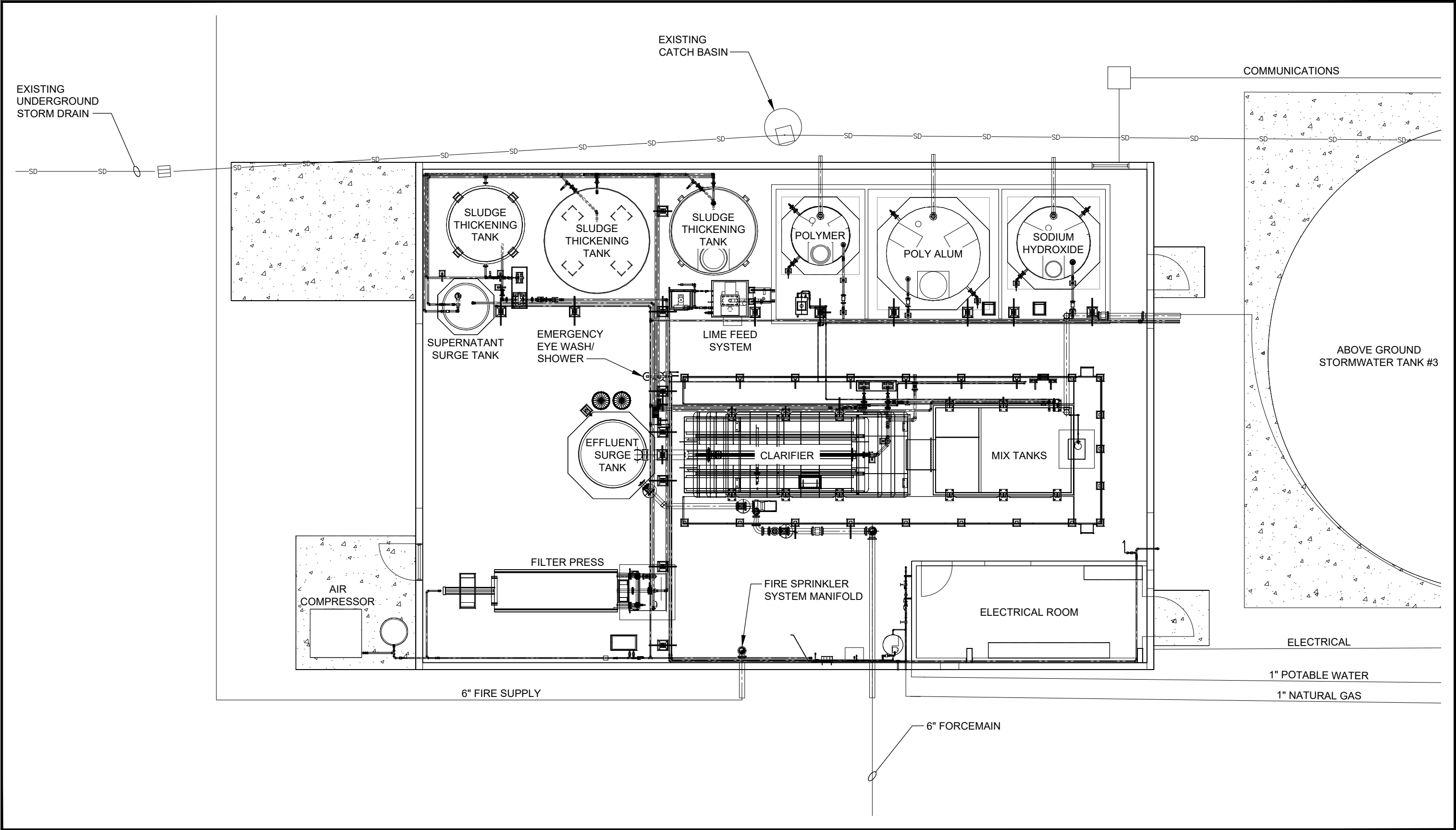




Appendix D.3

Building Layout Schematic of the Stormwater Treatment Facility





Appendix D.4

Process Flow Diagram of Stormwater
Polishing Filtration System.

